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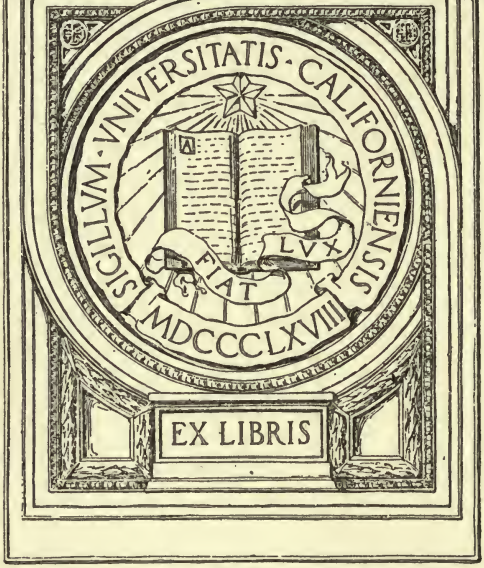
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INFANT CARE

CARE OF CHILDREN SERIES No. 2
Bureau Publication No. 8 (Revised)

WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

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SEE THAT THE BIRTH OF YOUR BABY IS REGISTERED.

It may some time be of the utmost importance to your child that there be in existence an accurate, legal record of its birth and parentage. It would be well to ask the doctor to make sure that your baby's birth is properly registered, or go to the register's office yourself and see that the record is made. It is suggested that a memorandum be made below of certain facts recorded in the birth certificate.

Baby's name_____

Father's name_____

Mother's maiden name_____

Sex of baby_____

If twin or triplet, give number in order of birth_____

Date of baby's birth_____
(Month.) (Day.) (Year.)

Birthplace:

City, town, or village_____

County_____

State_____

Attending physician:

Name_____

Address_____

Baby's registered number_____

CONTENTS.

	Page.
Letter of transmittal	9
Birth registration	11
The home	11–17
Selecting a home	11
The nursery	12–17
Temperature	12–13
Winter	13
Summer	13
Ventilation	13
Walls and floors	15
Furnishings	15–17
Bed	16
Dressing table	17
The care of the baby	17–47
Clothing the baby	17–23
Diapers	18–19
Care of the diapers	18
Waterproof diapers	19
Bands	19
Shirts	20
Petticoats	20
Slips	20
Night clothing	20–21
Sleeping bags	21
Shoes and stockings	21
Cloaks and caps	22
Additional clothing for the older baby	23
Baths and bathing	23–26
Giving the bath	24–26
Cool bath	25
Salt bath	26
Starch bath	26
Soda bath	26
Bran bath	26
Sea bathing	26
Care of special organs	27
Eyes	27
Mouth	27
Ears	27
Nose	27
Genital organs	27

464972

The care of the baby—Continued.	Page.
Sleep	27–30
Amount	27
Additional precautions	28–29
In winter	28
In summer	29
Regularity	29
Disturbed sleep	29
Teeth	30–32
Deciduous or "milk" teeth	31
Growth	31
Care	32
Feet	32
Development of the normal baby	32
How to weigh the baby	33
Outdoor life	34
When not to take the baby out	34
Exercise	34–36
Creeping pen	35
Baby pushers	35
Vehicles	35
Caution	36
Playing with the baby	37
Toys	37
Nursemaids	38
Children as caretakers	38
The baby's vacation	39–40
Traveling with young children	39
Care of the city baby	40
Care of the country baby	41
Superstitions	41
Habits, training, and discipline	42–47
Systematic care	42
Training the bowels	42
Training the bladder	43
Cleanly habits	44
Bad habits	44–46
Crying	44
"Pacifiers" or "comforts"	44
Thumb or finger sucking	45
Bed wetting	45
Masturbation	45
Punishment	46
Early training	46
Breast feeding	47–62
Importance of breast feeding	47
Production of breast milk	48
Care of the nursing mother	48–50
Diet	48
Bowels	49
Baths	49
Sleep	49
Work	50
Fresh air and exercise	50
Recreation	50

Breast feeding—Continued. Page.
Care of the breasts 50
Technique of nursing 52
Feeding rules 53
Feeding intervals 53
Amount of food 53
Growth 53
Conditions influencing the breast milk 54–55
Illness 55
Menstruation 55
Pregnancy 55
Difficulties of the nursing period 55–57
Stools 56
Underfeeding 56
Overfeeding 57
Summary of feeding for a well breast-fed baby 57
Weaning 58–59
How to wean 58
Wet nurses 59
The small or delicate infant 60–61
Premature baby 60
Expression of breast milk 61
Artificial feeding 62–76
Substitutes for mother's milk 62–65
Different kinds of cow's milk 63–64
Raw milk 63
Pasteurized milk 63
Scalded milk 63
Boiled milk 63
Condensed and evaporated milk 64
Dry milk or milk powder 64
Proprietary infant foods 64
How clean cow's milk is produced 65–66
The cow 65
The milker 65
Milking utensils 65
Refrigeration 66
Choice of milk 66
Care of milk in the home 66
Preparation for artificial feeding 67–69
Equipment 67
Preparation of the bottle feedings 68–69
Bottles 68
Nipples 68
Sterilizing utensils 69
Mixing the food 69
What milk mixture to feed the baby 69
Milk 70
Water 70
Sugar 71
Alkalies 71
Additions to diet under 1 year 71–72
Starches 71
Fruit juices 72

Artificial feeding—Continued.
Additions to diet under 1 year—Continued. Page.
Vegetables 72
Beef juice 72
Feeding rules 72–73
Feeding intervals 72
Amounts at each feeding 73
Giving the bottle 73
Growth 73
Difficulties of the artificially fed baby 74
Stools 74
Underfeeding 74
Overfeeding 74
Summary of artificial feeding to 1 year 74
The baby from 1 to 2 years 76–79
Food 76–78
Milk 77
Starches 77
Vegetables 77
Eggs or meat 78
Fruits 78
Water 78
Feeding intervals 78
Growth 78
Summary of feeding, 14 months to 2 years 78
The sick baby 79–98
What a mother should note 79
Essentials in caring for a sick child 80
Common disorders and diseases of infancy 81–90
Sudden illness 82
Vomiting 82
Hiccough 82
Colic 82
Constipation 83
Diarrhea 84
Hot-weather disturbances 85
Scurvy 85
Rickets 85
Heat rash 86
Chafing 86
Eczema 86
Thrush 87
Convulsions 87
Worms 88
Colds 88
Adenoids 89
Enlarged tonsils 89
Earache 89
Croup 89
Accidents 90–91
Swallowing foreign bodies 90
Swallowing pills or poison 90
Burns 90
Inhaling foreign substances 91

The sick baby—Continued. Page.
Communicable diseases 91–98
How to prevent the spread of children's diseases 91
The sick room 92
The nurse 92
The patient 92
Disinfecting the sick room 92
Whooping cough 93
Measles 93
German measles 94
Scarlet fever 94
Chicken pox 95
Smallpox 95
Diphtheria 95
Infantile paralysis 96
Tuberculosis 97
Gonorrhea 97
Syphilis 97
Food recipes 99–105
Buttermilk and whey 99
Buttermilk 99
Whey 99
Cereals 99–101
Cereal water 99
Gruels 100
Farina gruel 100
Oatmeal gruel 100
Cornmeal gruel 100
Breakfast cereals 100
Proportions and time for cooking cereals 101
Breadstuffs 101
Dried bread 101
Twice baked bread (zwieback) 101
Wafers (plain) 101
Bran muffins 101
Vegetables 102
Green vegetables 102
Starchy vegetables 102
Potato 102
Rice 102
Macaroni and spaghetti 102
Vegetable soup 102
Meats 103
Mutton broth 103
Scraped beef 103
Beef juice 103
Eggs 103
Coddled egg 103
Scrambled egg 103
Fruits 104
Stewed prunes 104
Apple sauce 104
Baked apples 104

Food recipes—Continued. Page.
Desserts ---- 104–105
Plain junket ---- 104
Custard junket ---- 104
Boiled custard ---- 104
Gelatin ---- 105
Cornstarch pudding ---- 105
Cornstarch fruit jelly ---- 105
Rice pudding ---- 105
Prune whip ---- 105
Government publications ---- 106
Index ---- 109

RECORD FORMS.

See that the birth of your baby is registered ---- 2
Record of baby's weight ---- 107

ILLUSTRATIONS.

Position of teeth in the mouth ---- 31
Expression of breast milk ---- Faces page 62

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LETTER OF TRANSMITTAL.

UNITED STATES DEPARTMENT OF LABOR,
CHILDREN'S BUREAU,
Washington, July 27, 1921.

SIR: I submit herewith a revised edition of the bulletin, Infant Care, by Mrs. Max West, first published in 1914.

Acknowledgment is hereby made of aid given by Mrs. Max West in the revision of the general sections relating to infant care and by Dr. Dorothy Reed Mendenhall in the preparation of sections on infant feeding. Valuable assistance has been rendered by the bureau's advisory committee of pediatrists, which consists of physicians appointed by the associations which they represent: Dr. Howard Childs Carpenter, representing the American Child Hygiene Association; Dr. Julius Hess, the American Medical Association; and Dr. Richard Smith, the American Pediatric Society.

Respectfully submitted.

JULIA C. LATHROP, *Chief.*

Hon. JAMES J. DAVIS,
Secretary of Labor.

UNIV. OF
CALIFORNIA

INFANT CARE.

BIRTH REGISTRATION.

It is of the utmost importance to have the birth of the baby promptly and properly registered. This should be done preferably within 36 hours after the baby's birth.

In most States the physician, midwife, nurse, or other attendant is required by law to report the birth to the local registrar, who will see that the date of birth and the child's name, together with other related facts, are made matters of public record. Birth registration is necessary in order to prove, among other things, the child's age and citizenship, his right to go to school, his right to go to work, to inherit property, to marry, to hold office, to secure passports for foreign travel, and to prove his mother's right to a pension, if she is a widow. Parents should make sure that this protection of fundamental rights is assured to every child born to them. If there is any doubt about whether the birth of a child has been registered, an inquiry may be sent to the State board of health at the State capital, where the records are filed. If there is no birth record, the board will furnish a blank which may then be filled out and returned.

THE HOME.

SELECTING A HOME.

The house which is to be the home of children should be sunny, well ventilated, and dry. The choice is usually limited by the size of the family income, but there is, nevertheless, within this limit some range of selection. Among houses of the same rental one may be in better repair than another, or the houses on one side of the street may be sunnier than those on the other, or one house may have more space about it than another, or the plumbing, drainage, or other conveniences may be in a more sanitary condition in one than in another.

Flats and apartments do not usually afford enough freedom for growing children, although a baby may do very well in such a place until he is 2 or 3 years old, when he needs more room, both indoors and out. Tenements with dark rooms are not fit homes for

children. Suburban homes, or those in the outskirts of cities or close to public parks, give to city children of the average family the best chance for proper growth and development.

In selecting a city home it is wise to consider what possibilities it has for future improvement—as, for example, whether the roof can be utilized for play space, whether there is room for a porch or bay window on any side, and whether the back yard is one in which the children may play.

In smaller cities, towns, and rural communities it is easier to provide children with light, air, and out-of-door space. In every case the house and its surroundings should be carefully inspected. The cellar or basement should be clean and dry; if there is a well, it should be so located as to prevent the water from being poisoned by foul drainage from stable or outhouses. Pools of stagnant water, manure heaps, piles of garbage, refuse or rubbish of any sort, and open privies furnish breeding places for disease-carrying insects, such as flies and mosquitoes.

THE NURSERY.

A bright, sunny room should be chosen for the nursery, for a child needs sunshine for health and growth just as a plant does, and, like a plant, will droop and pine without it. Windows opening to the south, southeast, or southwest will admit the sun for many hours of the day, and a room so lighted will, in the northern parts of the country, be most desirable. In the south, it may be better to select a more shaded room, especially for the summer months.

Whenever possible, the room should be given up to the exclusive use of the baby in order that temperature, light, and ventilation may be easily adapted to his special needs and everything can be so arranged as best to serve his welfare and the convenience of the mother. It is very hard to give the baby the quiet and privacy he ought to have in a room that must be occupied also by other members of the family.

Temperature.

A very young baby, or a delicate one, requires a warmer room than one older or more robust. For the first few weeks the daytime temperature should be kept between 65 and 70 degrees. At night it may fall from 10 to 15 degrees lower, if the baby is properly dressed and protected. (See section on night clothing, p. 20.) For older babies the day temperature may be from 65 to 68 degrees, and the night from 15 to 30 degrees lower, depending somewhat on the condition of the baby. A healthy child is easily accustomed to a cold room and is not harmed by it if he is kept thoroughly warm in his

crib and protected by screens against drafts of cold air. If the mother is in doubt about the baby's welfare on a cold winter night she should test his feet and hands. If they are warm, and he is sleeping quietly, she may be reassured. If they are cold, he needs more body clothing, more covers, or to be screened more completely from cold air. (See section on sleeping bags, p. 21.)

Winter.—In these months of the year when artificial heat is needed it is possible to control the temperature of the baby's room, to a large extent. This is done most conveniently with hot air, hot water, or steam heating systems; but even with stoves burning coal or wood it is possible by careful management to regulate the heat of the rooms. Oil and gas heaters should be used only to secure quick temporary heat, as, for example, when the bathroom is to be warmed for the bath. Open fires are pleasant, but if used without other heating apparatus are not very well adapted to nursery purposes, as they create more or less draft, and do not warm the room evenly. In mild weather or for cool nights and mornings in warm weather such a fire is a great comfort. Needless to say, open fires must be carefully screened to avoid accidents.

Summer.—In summer, in most parts of the United States, the problem is to keep the nursery cool, at least during the day. In the hottest weather the lower part of the house is usually cooler than nearer the roof, and it may be wise to move the baby about in order to secure a place for him to take his daytime naps in comfort. Although the evening may be very hot, the temperature usually falls before morning, and in some parts of the country summer nights get quite cold. In all these varying conditions the mother must use her common sense and her ingenuity to make the baby as comfortable as possible. He should wear only the band and diaper during the hot hours of the day, and light clothing at night, if the heat continues; and his body may be cooled with a sponge bath upon going to bed.

The temperature of the baby's room should be regulated by a thermometer, hung about 3 feet from the floor. No active adult can guess accurately the temperature prevailing about the baby's body. A thermometer is an inexpensive necessity in every well-regulated nursery. (See section on sleep, p. 27.)

Ventilation.

If doors and windows are on opposite sides of the room, a cross current is set up when they are opened and the room is quickly filled with fresh air. When there is but one window and the door opens onto a hall, a cross current may be secured by opening the doors and windows of other rooms at the same time. In very cold weather it is a matter of great difficulty to keep the rooms warm enough for com-

fort and yet well aired. As far as the nursery is concerned, this must be made a regular part of the mother's daily program. Daytime ventilation should be secured several times a day by opening all the doors and windows wide for a few minutes while the baby is out of the room, allowing the cold air to flood every part of the room, as it will very quickly do. The windows should then be closed and the heat turned on to restore the temperature before the baby is brought back. In milder weather, the window may be left open a crack at the top, or more or less constant ventilation may be secured through the use of various devices such as window boards. A wooden or glass board, 10 or 12 inches high, resting on the window sill and slanting toward the inside of the room is held in place by triangular supports at each end. This turns the air upward and prevents it from cooling the lower part of the room too suddenly. Ideally, another window should be open slightly at the top to secure cross ventilation. By another plan an opening a few inches wide, either at the top or bottom of the window, is closed with a board cut to fit the opening. This permits the air to enter in the space between the sashes at the middle of the window and distributes it so that it does not fall directly upon the heads of the occupants of the room.

For ventilating the nursery at night in cold weather, especially when the wind blows, cloth screens will be found a great convenience. Tack one or more thicknesses of cheesecloth on a wooden frame and insert in the open window, like an ordinary wire screen. The cloth breaks up the air current and distributes it in various directions, thus preventing drafts. A narrow cloth screen a few inches wide may be inserted in an opening at the top of the window, thus making it possible to keep the window open most of the time, even in very cold weather. Save during extraordinary weather conditions, such as heavy storms or excessively high winds, there is little if any time when outside windows should not be kept open in the nursery. It is quite possible to shield the crib or bed in such a way that no direct draft falls on the baby, and if protected from exposure to chill, he is far better off with plenty of fresh outside air circulating through the room while he sleeps than in a close, hot atmosphere. When the baby must occupy a room with older persons it is particularly necessary to secure a constant inflow of fresh air. This is true for all seasons and climates. The old superstition regarding the harmfulness of night air is entirely done away with. "Night air" is the only air there is to breathe at night, and, as a matter of fact, it is apt to be purer than day air, having been cleansed by dew or fog of the dust stirred up in the daytime. The use of outdoor sleeping porches has greatly assisted in solving the problem of ventilation for sleeping rooms. Healthy babies can safely sleep outside, at least in mild weather, if properly dressed, and if the porch is screened and pro-

tected. Such a porch is also a great aid in the daytime care of a baby. (See section on outdoor life, p. 34; also sleeping bags, p. 21.)

Walls and floors.

The baby's room should be kept scrupulously clean. If the house is old the nursery should be freshly papered and painted. The walls may be painted or covered with waterproof wall paper which can be wiped off with a damp cloth.

A bare floor may easily be kept clean. Hard woods are preferable since they do not splinter, but a soft-wood floor painted or varnished will do very well. Linoleum may be used on an old floor; it is easily cleaned. Washable rugs may be used, if desired, but heavy rugs and carpets are not suitable for a nursery. When the baby is large enough to sit on the floor to play, a mat or a heavy blanket folded or even a clean comfort may be used as a mat. This is most important in winter when there are cold floor drafts. A play pen with a raised floor is a great convenience in such circumstances.

Furnishings.

Everything not actually needed for the care of the baby should be ruled out of the nursery. Furnishings must be of such a nature as to permit washing with soap and water and exposure to sunshine and open windows. If old furniture is used, it may be painted with white or light washable paints. Upholstered furniture, heavy draperies, or covers are unsuitable for use in this room. Following is a list of the essentials:

Bed.
Bed furnishings.
Bureau or chest of drawers for clothing. A sectional bookcase is admirable for this purpose, as the piles of garments can be seen at a glance. The upper section may be used to hold the articles for the bath.
One or two low chairs.
Bathing equipment.
Toilet equipment.
A bed or couch for nurse or mother, if she must sleep in the same room.
A wall thermometer.
A low chair without arms, for the mother when nursing the baby.

Other useful articles are:

Dressing table.
A little chair and table for use of the child.
Platform scales with flat basket.
Table to hold scales.
A folding canvas table on which to bathe, change, and dress the baby.
A screen, covered with washable material.
A nursery ice box.
A bath thermometer.

The bath equipment will include a tub, either tin, enameled ware, or rubber, a washbasin, an enameled-ware tray, or a box or drawer divided into compartments in which are kept such things as—

Absorbent cotton;
Boric-acid solution,
Safety pins (three sizes);
Soap (Castile);
Squares of gauze or old linen;
Talcum powder;
Tube of vaseline, albolene, or cold cream;
Soft baby brush or comb;

and

Six soft linen towels;
Six cheesecloth or mosquito netting wash cloths;
Bath apron (butcher style), outing flannel;
Bath towel for mother's lap or dressing table.

The toilet equipment may be kept in the bathroom. It should include a painted nursery chair, with a cushion for the seat; a small chamber of enameled ware (a porcelain cuspidor is convenient); a covered enameled-ware slop pail for diapers (two are desirable); and a soiled-clothes hamper.

For the baby in the second year other articles will be needed. He should have a high chair, for meals; one or two low chairs; a foot rest for his toilet chair; and a play pen. A hinged gate at staircases is often necessary.

Bed.—The first bed may be a basinette, or may be made from a large flat clothes basket, or even from a clean box. For this simple form of bed a folded quilt or blanket may be used as a mattress. Since a larger bed will soon be needed, it is just as well to start in with the permanent crib and a mattress of hair, felt, or cotton. Home-made mattresses, stuffed with cotton, moss, or even straw may be used, with a soft cotton pad over them. When a basket bed is to be used it should stand on a table or on two chairs placed with their seats together, and should never be left on the floor while the baby is in it. It is well to pad the ends and one side of a metal crib.

The mattress should always be protected by rubber sheeting, oilcloth, or newspapers, but a soft pad of some sort should be spread directly under the baby.

There is a combination bed and play pen on the market which is very convenient, particularly in small rooms, as it may be easily moved between the house and porch or from room to room. It is covered with wire netting and furnished with a mattress, making it safe and comfortable for the baby both for day and night use, while he is young. (See section on creeping pen, p. 35.)

To make the baby's bed when a metal crib is in use, cover the mattress or the middle section, with the oilcloth or soft rubber

sheeting, to each corner of which a strong tape has been sewed. Tie these tapes together under the mattress to hold the rubber smooth. (If desired, the rubber cover may be made like a pillowcase, covering the mattress entirely.) Over this place the cotton pad, then cover with a small sheet, which should be tucked under the mattress on all four sides, so that the bed is perfectly smooth. If sleeping bags are used, no other covers are needed. The bed may be finished with a neat dimity spread, which is easily washed and requires no ironing.

A baby will breathe more easily and take a larger supply of air into the lungs if no pillow is used. If the mother desires, she may place a clean, folded napkin under the baby's head, but the head should not be elevated appreciably.

Dressing table.—Many mothers find it convenient to have a table on which to change, bathe, and dress the baby. It does away with much lifting, lessens the strain on the mother, and gives her freer use of both hands. This table may be of whatever height the mother finds most suitable, according to her own stature and whether she prefers to stand or sit while making the baby's toilet. One model is about 30 inches from the floor. A common kitchen table having the legs sawed off to the desired height will answer every purpose. Such tables are sometimes fitted with drawers, sliding shelves, towel racks, and compartments of various kinds, but a much simpler one will do and will be found a great convenience. If the table top is made of white maple or oak with very tight cracks, it can be scrubbed with hot water and soap as often as desired. If soft wood or an old table is used, it will be better to cover the top with oilcloth, or even with tin. Of course the baby is always put down on a soft pad, whatever the material of the table top.

THE CARE OF THE BABY.

CLOTHING THE BABY.

Dress the baby carefully, turning him as little as possible. The mother quickly learns the best and most efficient method. A little baby may be much fatigued by a too-prolonged toilet.

Clothing must be adapted to climate, season, and to the age and condition of the baby. Young babies and those who are weakly need warm clothing, as they are easily chilled. Robust babies quickly adapt themselves to the prevailing temperature, and especially as they grow older and more active are sometimes too warmly dressed.

If the baby's hands and feet are cold or he looks pinched and blue about the lips, he needs warmer clothing. If he continually perspires and his body is moist to the touch he has too much on. Overdressed babies are likely to be restless and fretful. In hot weather

and in warm climates light-weight garments should be chosen, while in the North or in winter much heavier and warmer articles will be necessary. Doctors for the most part believe that shirts, bands, and stockings for the young baby should have some admixture of wool. If necessary, they may be of the lightest weight, and in the hottest weather only the band, diaper, and slip need be worn.

All clothing should be simple. Elaborate decoration is entirely unsuitable to a baby's clothing. It may be as fine and dainty as the mother can afford, but should admit of constant washing.

The dresses and skirts may be 26 inches in length, the extra length being used to cover the baby's feet and to add to the convenience of handling him. In hot climates the clothing may be made short from the start. This is a great economy, both of time and expense.

The following list gives the clothing necessary for the average newborn baby:

Diapers	dozen	4 to 8
Knitted bands	number	2 to 4
Knitted shirts	do	2 to 4
Flannel petticoats	do	2 to 4
Nightgowns	do	3
White cotton slips	do	4 to 8
Coat and caps.		
Long bootees or stockings	pairs	2 to 4
Sacques	Number	3
Wraps or blankets	do	3

Diapers.

Cotton bird's-eye is the usual material for diapers. They should be twice as long as they are wide, and at least two sizes will be necessary. One set may be 18 by 36, or 22 by 44 inches, and the large ones 26 by 52 inches. The cloth should be washed and shrunk before it is hemmed or at least 1 inch should be allowed on each diaper for shrinking. For the first diapers nothing is better than a fine grade of cheesecloth; they should be one yard wide, so that when folded twice the diaper shall have four thicknesses one-half yard square. Cheesecloth washes very easily and is both soft and absorbent. Many mothers prefer using old pieces of household cotton for the first diapers, and also for inside pads to catch the heavier discharges. Care should be taken not to use diapers which are too bulky, as they may cause thigh deformities. The number of diapers to be provided depends upon the washing facilities. It is much easier to have a large number of diapers than to be obliged to wash them every day; 5 or 6 dozen is not too many for convenience, but two dozen of each size will keep the baby fairly well supplied.

Care of the diapers.—No diapers should be used a second time before being washed. Used diapers should never be left lying about the

room nor hung up to dry on the radiators. Wet diapers should be placed at once in a covered pail and left to soak in cold water until they can be washed. If soiled diapers can not be attended to at once they should be placed in a separate covered pail, and if they are to be washed within 24 hours it will be better not to soak them, as in that way the stains spread throughout the entire diaper. All solid discharges should be removed from the diaper and it should not be put into the tub until nothing but the stain is left. This is done by holding the soiled diaper over the closet and removing all the solid stool by shaking, brushing, or scraping. It is well to keep a case knife in some convenient place solely for this purpose. If a brush is used it must be thoroughly washed at the end of the operation. The soiled diapers must be rinsed through several waters, using the pail in which they have been stored. They may then be washed with the wet diapers. All the diapers should be washed in very hot water with plenty of mild white soap. No washing powder of any sort is permissible. They should be well boiled and rinsed through several waters. Much of the irritation of the thighs and buttocks, which is the source of such severe suffering to babies, is caused by insufficient rinsing of the diapers. Whenever possible diapers should be dried in the sunshine and open air. They may be used without ironing, but they are softer and look better ironed. An inner pad may be used to protect the diaper from the worst of the soiling and thus decrease the labor of washing. During the day the diaper should be changed as often as it is wet or soiled. In the night it should be changed when the baby is taken up to be fed. Diapers should be put on so that the principal thickness is not between the legs. (See training the bowels and bladder, pp. 42, 43.)

Waterproof diapers.—There are on the market certain waterproof diapers which can be washed with boiling water which may be used for very short periods. It is a great comfort to the mother to be able to feel that baby will not wet through his clothing while she is taking him on a short journey. Needless to say, however, waterproof diapers are suitable only for temporary use and the baby should be changed just as often as when such diapers are not a part of his toilet. If he is allowed to go for any length of time in a wet diaper, the skin is certain to become sore. Waterproof diapers are especially dangerous to girl babies.

Bands.

Abdominal bands, used to hold the navel dressing in place, are unhemmed strips of part-wool flannel 6 to 8 inches wide and 18 to 20 inches long. The navel dressing may be held with surgical gauze bandages, making flannel binders unnecessary. In this case, the knitted band with shoulder straps will be used from the start.

Whatever sort of band is used it should never "bind." A band, if drawn tightly about the abdomen, does not prevent rupture and may do harm if the pressure is in the wrong place. The abdominal muscles of a healthy baby need little support, save, perhaps, in the earliest weeks of life; rather they need free play in order to be strengthened in the natural way by the slight exercise the baby can give them. The knitted band with shoulder straps should be substituted for the flannel band if this is used as soon as the navel has healed. The band should be fastened with tiny safety pins or with tapes just at one side of the front, never in the back.

Shirts.

Knitted bands and shirts come in several weights and sizes. It is well to begin with the second size, as the first is soon outgrown. They are all wool, or wool and silk, wool and cotton, all silk, or all cotton. Usually either the cotton-and-wool or silk-and-wool mixtures are best. For hot weather the lightest weight should be selected for the average healthy baby. The shirts should open all the way down the front, and they must be large enough so that the sleeves will easily slip on and off. Occasionally a baby may be found whose skin is so delicate that it is irritated by even the smallest amount of wool. For such babies the all-silk or the all-cotton garments may be selected. In the North or in winter, or for very young or weak babies, the shirts and bands should be at least half wool. All young babies should have at least one garment that is part wool.

Petticoats.

Part-wool flannel should be used for the petticoats, selecting the lightest weight for hot weather. Even for the newborn baby the petticoat should not extend more than 10 inches below the feet, and if the weather is hot, it may be several inches shorter. In hot climates all the clothing may be short from the start. Skirts may be made by the Gertrude or princess pattern, closing on the shoulders. Muslin petticoats are unnecessary for the young baby.

Slips.

Slips are very simply made of fine white cotton materials, such as nainsook, long cloth, or batiste. They should not be over 28 inches long and may be shorter. If made in kimono style, they may have a tuck over each shoulder which will permit them to be easily enlarged. Drawstrings in the neck and sleeves will also make it possible to adapt the garment to the baby as he grows larger. No trimming which can scratch or irritate the tender skin of the baby's neck is permitted, and his garments should not be starched.

Night clothing.

A simple wrapper which opens all the way down the front is a useful garment, particularly for a very young baby and, if desired,

may take the place of the slip during the first few weeks. Any soft material may be used, but part-wool or cotton flannel is commonly chosen. It must be remembered that the fuzzy surface of all cotton flannels is highly inflammable, and care must be taken to guard against fire when this material is used in children's clothing. These wrappers may be worn as nightgowns when the baby is older. Nightgowns, both long and short, may be bought ready-made, a very satisfactory sort being made of single stockinet.

Winter nightgowns for a very young baby may be drawn up at the feet with a string run through the hem, but for an older baby this arrangement restricts his freedom to kick. For this reason night garments made with feet are better in winter for older babies.

Sleeping bags.—After the baby is 5 or 6 months old, or whenever he can not be depended upon to remain wrapped up in his blankets all night, he should have a sleeping bag. For the winter the bags may be made of any woolen material, preferably a soft blanket. Use a single blanket, folding it in the middle, crosswise. Sew it together on one end and the other side and fasten the top in two places, a few inches apart, with hooks and eyes. Put the baby inside the bag and fasten over each shoulder. In the coldest weather two or three bags may be used if necessary. In summer the bag is made of muslin or outing flannel. A small, thin sheet will do for the hottest weather, and little or no clothing need be worn under such a bag. A simpler plan for making a bag for a young baby is to cut a slit in the middle of an old blanket, wide enough to permit it to slip easily over the baby's head. The cut edges are bound or stitched. The blanket is slipped over the baby's head, smoothed down under and over him, and the lower corners folded toward the middle and fastened with safety pins. This makes it possible to change the baby without taking him out of the blanket.

A mother who has tried sleeping bags will never be persuaded to return to the ordinary bed covers. By means of the bag the baby can never uncover himself, and thus will be saved many a chill; and, in addition, the mother can sleep undisturbed by the necessity of getting up to cover the baby during the night.

In addition to the bag, a nightcap will be needed in cold weather, especially if the baby sleeps out of doors. A wool stocking cap or a flannel hood, lined with cotton or silk and tied under the chin, may be used. A little cape sewed to the bottom of the cap will help to protect the neck in cold weather. This cape may be fastened to the sleeping bag at the back.

Shoes and stockings.

It is important to keep the legs and feet of a young baby very warm. While he is in long clothes they may need no other covering, but in cold weather and in changeable climates it will

probably be necessary to use some sort of foot covering in addition to the skirts and blankets with which he is wrapped. The mother should feel of the baby's feet often, as, for instance, when she is changing the diaper, and if they are cold they should be dressed. The older baby can go barefooted much of the time in warm weather but should not be allowed to go any length of time with cold feet, and he will need shoes and stockings as soon as he begins to walk, to protect the feet from injury.

The best stockings are part wool. Those described as "unshrinkable," said to be made of a mixture of wool and linen, are somewhat expensive but are genuine economy, as they are very durable and will last until fully outgrown. Others are of wool and cotton, or wool and silk. Three pairs will answer, beginning with the second size. They may be quickly washed out and dried on stocking stretchers. A loop of tape may be sewed to the top of the stocking, through which to slip the safety pin which holds them to the diaper.

Knitted bootees, the conventional gift to the baby and dear to the young mother's heart, should be long and have a turn at the knee. Like other all-wool garments they shrink and harden very easily unless carefully washed. When taking the baby out in cold weather, or for outdoor sleeping, short bootees may be worn over stockings, like shoes. Care should be taken not to tie the strings tight about the ankles.

For the older baby soft shoes or moccasins may be made at home from old kid gloves, or from flannel or felt. High woolen boots, to pull on over the baby's shoes and stockings for extra warmth, may also be made from flannel or eiderdown.

When the baby begins to walk he will need shoes with firm soles. It is no uncommon sight to see a baby walking along an icy or damp sidewalk with shoes so thin-soled that it is hardly possible that his feet will not be chilled. Frequently all the rest of the body is covered with thick clothing, coat, cap, and mittens, while the feet and legs have no additional covering. Both leggings and overshoes are necessary in cold weather for the baby who is old enough to walk outdoors. (See section on care of the feet, p. 32.)

Cloaks and caps.

Since a baby exercises very little when taken out in a carriage, he must be warmly wrapped if the day is cold. Cloaks should either be of warm woolen material or have an interlining of wool, or, in cold climates, both. For the "runabout" baby additional warmth is secured by the use of leggings, a sweater, overshoes, and mittens. Summer wraps may be made of silk or cotton, although a cloak of challis, cashmere, or nun's veiling has more warmth and at the same time is light in weight. Caps should not be thick enough to cause

the head to perspire. A silk cap with an interlining of wool wadding or of flannel may be used in winter. Hoods or caps knitted of woolen yarn, having a cape to come down under the coat collar and protect the neck, are excellent in the coldest weather, but are too warm in mild climates. Silk or muslin caps may be worn in the milder months, or the baby may go bareheaded if protected from the sun. No starch should be used in the caps, as stiff strings or ruffles scratch the delicate skin and may lead to eczema. Cap strings and ribbons should be carefully examined after the child is dressed, to see that they are not too tightly tied.

The older baby may be dressed for cold weather in a knitted woolen garment which covers him from neck to toes.

Additional clothing for the older baby.

The baby may go into short clothes as early as the mother pleases. Indeed his clothing may have been short from the start, as has already been said. In most cases, the first clothing can be shortened as needed, and if the slips and petticoats have been made large enough in the beginning they may be used for a year or more. The baby will outgrow his first shirts, bands, and stockings and will need larger ones after a few months.

During the second year if the baby has been trained to the use of the chamber he will go into drawers and will then need underwaists and long garters. Round garters should never be used.

After a child begins to try to walk his skirts are very much in his way, and some kind of rompers is highly necessary. A simple dress, made on the plan of the envelope chemise, is described in the third bulletin of this series.[1] Additional information regarding the clothing of the older child is given in the same bulletin. It will be sent free of charge upon request.

BATHS AND BATHING.

A healthy baby should be bathed every day. During the first two weeks these and all matters pertaining to the care of the baby are usually under the supervision of the doctor or nurse. When the mother takes charge she will find it convenient to give the bath before the midmorning feeding and after the bowels have moved. Directions for the first bath are given in the pamphlet on Prenatal Care.[2]

Sometimes it may be more convenient for the mother to give the bath at night, just before the baby's bedtime. The full tub bath may be given as soon as the scar where the navel cord was attached has

[1] See West, Mrs. Max: Child Care, pt. 1, The Preschool Age, p. 31. U. S. Children's Bureau Publication No. 30, Care of Children Series No. 3. Washington, 1918.

[2] See West, Mrs. Max: Prenatal Care, p. 30. U. S. Children's Bureau Publication No. 4, Care of Children Series, No. 1. Washington, 1921.

fully healed. For some weeks a tiny baby may be bathed in a basin or bowl; after that he should have an ordinary baby tub. The basin or tub should always be warmed before it is filled. The water should be at body heat or slightly above; that is, from 98° to 100°. A bath thermometer is an inexpensive convenience and should be provided, but if none can be had the mother may test the temperature with her elbow. When the water feels neither hot nor cold it will be comfortable for the baby. It should be tested after the baby is undressed and ready to get into the water. Hot water should never be added to the bath while the baby is in the tub. Never put the baby in the bath while the tub is standing on a stove or heater; he might be seriously burned in this way. Never leave a young baby alone in the tub. Never bathe a baby within an hour after feeding.

No unnecessary exposure or delay should take place, for in cold or cool weather the baby is quickly chilled. He should be protected from drafts by screens or by a shield made by hanging a blanket over the backs of two chairs, and all the necessaries—such as soap, wash cloths and towels, clothing, bath apron for the mother, tub, water, thermometer, and powder—should be at hand before undressing the baby. A baby should always have his own towels and wash cloths of soft cheesecloth or old linen; the towels should be old and soft. Use a pure, bland, white, nontransparent soap. Very little soap is needed, and it is most important that the skin be thoroughly rinsed after a soapy bath.

Giving the bath.

Before beginning, the mother should wash her own hands clean and see that there are no pins or needles in her clothing to scratch the baby. The room should be comfortably warmed—to about 75°—for a young baby. It is not wise to have it so hot that the baby perspires, as there is then grave danger of his being chilled when taken into another room where the temperature is lower or when the room itself is rapidly cooled. It is often difficult to warm the house quickly on cold winter mornings, especially in severe winter weather or when a cold wind is blowing; and sometimes the temperature does not rise to a comfortable degree throughout the greater part of the day. In such cases the baby should not be allowed upon the floor at all and should be dressed as for out of doors, even to mittens. Babies sometimes suffer with cold hands indoors quite as severely as with cold feet and need to have the hands well covered both while awake and asleep. On cold winter mornings, the baby should be thus warmly dressed and kept in his crib, which may be moved in front of a sunny window and heated with hot-water bags or hot bricks, until some room—nursery, bath, or kitchen—is warm enough to permit his being bathed and dressed.

Before the baby is completely undressed his face and scalp should be washed. Wash the face with a small soft cloth kept for this purpose, then lay the baby on his back in the mother's lap. It is usually more convenient to have his head to the right, and slightly lowered. Rub a little soap on the cloth and wring it out of the warm water, so as to make a suds. Lather the baby's head completely and quickly and rinse several times in clear warm water, all without raising the head. Rub lightly and dry quickly. By this process the head is easily washed, without running any risk of getting a drop of soap into the sensitive eyes. The baby is then turned about so that the mother may more conveniently use her right hand for the rest of the bath. Next, remove the remainder of the clothing and go over the entire body with the soapy wash cloth; then place the baby in the bath, holding him with the left forearm under the neck and shoulders, the hand under his arm, lifting the feet and legs with the right hand. Use the right hand to sponge the entire body, then lift him out and wrap him at once in a warmed towel. Dry carefully with soft warm towels, patting the skin gently. Never rub the baby's tender skin with anything less smooth than the palm of the hand. Dress him as rapidly as possible if the weather is cold, taking great pains not to expose him unnecessarily. When the weather is very hot in summer only a slip and diaper are needed.

If the skin is carefully dried after the bath there will be little need for powder, and it should never be used as a cover for careless drying. It is well to use a little pure talcum powder in the creases and folds of the skin, under the arms, and around the buttocks, but it should not be used so generally as to fill the pores of the skin and clog them and should be applied only after the skin is dry.

For one reason or another a baby sometimes objects to his bath. In such cases judicious coaxing may be employed. Toys which float will often divert the baby's attention and make him forget his objections to the water. Sometimes lowering him into the water wrapped in a towel or covering the top of the tub with a cloth, so that he can not see the water, will accomplish the result. If his dislike has been caused by having been put at some previous time into a bath which was too hot or too cool, let him dabble in the water first with his hands and feet until he is reassured. Sometimes the baby will cease his objections to the bath if his face is not washed until after the tub bath is over. The baby should be induced to the desired action by pleasant means which do not upset his sensitive nervous system. Force or harshness is worse than useless in this as well as in other matters in the training of the baby.

Cool bath.—The temperature of the bath may be gradually lowered until it is down to 96 degrees for a baby of 6 months and 90 or

even 80 degrees for one of 1 year of age. Toward the end of the second year a robust baby may be given a cool sponge, but he should never be frightened or chilled in administering this wholesome treatment. He should be gradually accustomed to it by being allowed to stand in his tub at the end of his daily bath with his feet in the warm water, while a sponge of cooler water is squeezed over the throat and chest. The water may be made colder by degrees until he is taking it quite cool and enjoying it. He must be rubbed quickly and thoroughly at once until the skin is red and glowing. If this reaction does not come or if the child shows any appearance of chill or has cold hands and feet two or three hours after the bath the treatment must not be repeated. Provided the glow always comes, a quick, cool sponge douche or shower at the end of the bath is one of the best tonics that can be found and induces an excellent habit for after life. After a cool bath the child should always have vigorous exercise for a few minutes in order to promote the necessary reaction.

Salt bath.—Use half a teacupful of common or sea salt to each gallon of water. The salt should be dissolved in a cup of warm water to prevent the sharp particles from pricking the skin. The doctor sometimes orders a salt bath.

Starch bath.—Add a cupful of ordinary cooked laundry starch to a gallon of water.

Soda bath.—A soda bath requires two tablespoonfuls of baking soda to a gallon of water, dissolving it in a little water before adding it to the bath.

Bran bath.—Make a cotton bag of cheesecloth or other thin material, 6 inches square. Fill loosely with bran. Soak the bag in the bath water, squeezing it frequently until the water becomes milky. Starch, soda, and bran baths are often used in place of the soap-and-water bath when the skin is inflamed, as in chafing or prickly heat.

Sea bathing.

Although a baby under 2 years should not be given a sea bath, a word of caution about sea bathing for young children may not be amiss. The cruelty with which well-meaning parents treat young, tender children by forcibly dragging them into the surf, a practice which may be seen at any seaside resort in the summer, can have no justification. The fright and shock that a sensitive child is thus subjected to is more than sufficient to undo any conceivable good resulting from the plunge. On the other hand, a child who is allowed to play on the warm sand and becomes accustomed to the water slowly and naturally will soon learn to take delight in the buffeting of the smaller waves, but he should not be permitted to remain more than a minute or two in the water, and should be thoroughly dried, dressed immediately, and not left to run about the beach in wet clothing.

CARE OF SPECIAL ORGANS.

Eyes.

Whether the young baby is awake or asleep, his eyes should always be shielded from strong light, either sunlight or artificial, and from dust and wind. Care should be taken not to allow any soapy water to enter the baby's eyes in bathing. Swelling or redness or any discharge should have medical attention at once.[3]

Mouth.

A healthy baby's mouth needs no cleaning before the teeth come. The saliva is a cleansing fluid, intended to keep the mouth healthy. It is possible to injure the delicate membrane of it by attempting to clean with a cloth.

Ears.

Wash the external ear with a soft cloth, but never attempt to introduce any hard instrument inside the ear to clean it. Always dry the ears and the creases back of them very carefully.

Nose.

The baby's nose should be cleaned as a part of the daily toilet in the same way as the ears. When the baby has an infectious cold he should have special attention. (See section on colds, p. 88.)

Genital organs.

These organs in both sexes should be kept scrupulously clean, with as little handling as possible. Boys should be examined by a physician to see whether or not circumcision is needed. The foreskin should frequently be drawn back at bathing time until the raised edge of the glans is visible and the organ cleansed. If the mother finds it difficult to retract it, she should not attempt to do this alone, but should ask the doctor to show her how. Perfect cleanliness is the principal treatment required in girl babies. Any swelling or redness of the parts or a discharge, however slight, should be brought at once to the doctor's attention.

SLEEP.

Amount.

A very young baby should sleep from 18 to 22 hours out of 24; during the second and third months from 18 to 20 hours. When he is 6 months old he should sleep 12 hours at night without interruption, save possibly for one evening feeding. At this age he will probably sleep 2 hours, both morning and afternoon, but should not sleep after 3 o'clock, in order that he may be ready to go to bed at 6 o'clock in the evening. The long period of night sleeping should be continued throughout childhood, but the daytime naps may be

[3] See Prenatal Care, p. 30, for care of newborn baby's eyes.

gradually shortened. At 1 year of age the baby may require one long and one short nap during the day. In the second year the two naps are merged into one, which may continue from one to two hours in the middle of the day. Even if the child does not sleep all this time, the habit of resting in a quiet room is of great value. He should be provided with the best possible sleeping accommodations, so that the hours of sleep may be of the greatest value. He should always sleep in a bed by himself, and whenever possible in a room by himself, where he need not be disturbed by the presence of other persons, and where light, warmth, and ventilation may be adjusted to his particular needs. Not a few young babies have been smothered while lying in bed with an older person, some part of whose body was thrown over the baby's face during heavy sleep.

Never give a baby any sort of medicine to induce sleep. All soothing sirups or other similar preparations contain drugs that are bad for the baby, and many of them are exceedingly dangerous. Many babies die every year from being given such medicines. The baby should never be allowed to go to sleep with anything in the nature of a pacifier in his mouth. Thumb- and finger-sucking babies will rebel fiercely at being deprived of this comfort when they are going to sleep, but this must be done if the habit is to be broken up. The baby ought to have a reasonably quiet place in which to sleep, but he should be taught to sleep through the ordinary household noises, unless they are unduly disturbing. It should not be necessary to walk on tiptoe and talk in whispers while the baby sleeps, provided he has a quiet place for his daytime naps.

A baby should never be put down to sleep in all his clothes. His shoes, especially, should be removed, and, unless the weather is very cold, it is better to remove the stockings also. But his feet must always be kept warm.

Additional precautions.

In winter.—To keep a baby warm all night in excessively cold weather and have sufficient ventilation at the same time is somewhat difficult. To accomplish this, the baby should be dressed in shirt, diaper, and stockings under his nightgown and, if necessary, a soft, roomy sweater may be used also. The sleeves of the gown or sweater should come down over the hands, or mittens may be worn.

It may be well to warm the bed with hot-water bottles or hot bags of sand or salt. The heated bags may be put in at the foot of the bed, to keep the baby's feet warm. Hot-water bottles should be very carefully stoppered and wrapped to prevent accidents. The baby's flesh is exceedingly delicate and easily burned, and he can not tell of his discomfort. Guaranteed self-regulating electric heating pads are convenient, but the greatest care must be exercised in their use.

In summer.—To promote comfortable sleep in warm weather the baby should be very lightly dressed, wearing nothing in addition to his sleeping bag save a thin nightgown, diaper, and gauze band after the first three months. Very young or delicate babies may need the shirt also, but this should be of the lightest weight. The room should be made as cool as possible. Outdoor sleeping is highly desirable for all babies when they can be protected from flies and mosquitoes, sufficiently shielded from rain or wind, and protected in case of a sudden drop in the temperature. Indoors, an electric fan will keep the air in the room in motion and thus relieve the oppression of the heat. An oscillating fan will prevent a continuous direct current of air from blowing on the baby.

Regularity.

A baby should be trained from the beginning to have the longest period of unbroken sleep at night. Some babies get a wrong start in this respect and make great trouble by turning night into day. A strong argument in favor of the long interval between feedings is that it largely does away with the need for waking the baby to nurse. Nature intends that the baby shall waken when hungry, and this normally occurs about once in 3 or 4 hours in a young healthy baby, so that with a little care the regular feeding interval can be made to coincide with the normal periods of waking. If the baby is still sound asleep when the time for nursing has come, he should be gently roused and put to breast. This will involve little shock to his nerves, because he will be about ready to waken in any event.

A mother who must prepare and serve the evening meal of the family will find it a great comfort to give the baby his supper at half past 5 and have him in his crib at 6. For the first few months he will be fed again about 10 o'clock, but after that he should not be taken up. He must be made comfortable in every way, the light should be put out, the window opened, his covers adapted to the temperature, but after the mother has assured herself that everything essential to his comfort has been attended to, if he is a perfectly healthy baby, she should not go to him when he cries.

Disturbed sleep.

If the baby sleeps lightly, wakens often, and seems uncomfortable he may be nervous from having been tickled, played with, or tossed about in the latter part of the day. Overstimulation is to be avoided at all times, no matter what its source nor what the age of the baby. It is possible that he is too warm, too cold, or wet; there may be something scratching him, or there may be wrinkles in the bed clothing; he may be lying in a cramped position, or the band or diaper may be too tight, or more likely, he has been overfed, or has had something unsuitable to eat, or is hungry or thirsty. It may be, also,

that the room is too hot, too cold, too light, too noisy, or not sufficiently aired. The conditions which make sleep a delight to older persons affect the baby in the same way, namely, plenty of fresh air passing in a constant current through the room, quiet, a clean body, clean, comfortable clothing, a good bed, and suitable coverings.

A cool bath or a warm one, according to the temperature, will help to induce quiet sleep. In the summer, when the baby is fretful and sleeps restlessly, a tub bath at bedtime will help to relieve him. A little baby should be turned over once or twice in the course of a long nap.

Many parents are in the habit of taking the children, even very young babies, out with them in the evening to shop, to the "movies," or to visit friends, thus making a regular early bedtime an impossibility. While in many families there is no one to leave the baby with if father and mother both go out, and it is a deprivation if one must stay at home, the baby's welfare should be the first consideration. If the baby is taken out in the evening his habit of going to bed at 6 o'clock is broken up; he usually loses some part of the unbroken sleep of 10 or 12 hours he needs, as he may not sleep on in the morning to make up what he lost the night before; and his eyes and nerves are overstimulated by the lights and noise. Furthermore, he is likely to have been kept for an hour or more in a close, hot atmosphere and may have been exposed to some contagious disease.

THE TEETH.

The development of the teeth begins at least six months before birth. It is probable that a nutritious diet for the prospective mother lays the foundation for healthy teeth in the baby and that lack of proper food for the mother may deprive both her own and the baby's teeth of some part of their normal vigor.[4] Every child has two sets of teeth. The first set, known as the deciduous or "milk" teeth, are replaced, beginning at about the sixth year, with the permanent or "second" teeth. Nearly all so-called "teething" troubles belong to the first period, as a disturbance is rarely connected with the coming of the permanent set.

At birth each tiny tooth of both sets lies partly embedded in a cavity of the jawbone, surrounded with and covered by the softer tissues of the gum. As the baby grows, the teeth grow also, and if the baby is healthy they are ready to cut through the gums, beginning at about the seventh month of life.

Teething is a normal process and should not be accompanied by any upset. Many children, however, do show a slight disturbance

[4] See Prenatal Care, pp. 8, 9, "Diet during pregnancy."

at this time, and a doctor should be called to determine that it is no other condition which is causing the trouble.

Lower jaw.

1. First incisor, 6 to 9 months.
2. Second incisor, 12 to 15 months.
3. Canine or "stomach," 18 to 24 months.
4. First molar, 12 to 15 months.
5. Second molar, 24 to 30 months.

Upper jaw.

1. First incisor, 8 to 12 months.
2. Second incisor, 8 to 12 months.
3. Canine or "eye," 18 to 24 months.
4. First molar, 15 months.
5. Second molar, 24 to 30 months.

Deciduous or "milk" teeth.

The above illustrations, with the appended notes, show the position of the teeth in the mouth, their names, and the approximate times of their appearance. There are 20 of the milk teeth, 5 in each half jaw. The teeth appear in groups. There are five of these groups, with intervals between their appearance. After the first group there is a pause of five to eight weeks; after the second, a pause of one to three months; after the third, one of from two to three months; after the fourth, one of from two to four months. Thus, by the time a baby is 1 year old it may have 6 teeth; at 1½ years there should be 12; at 2 years, 16 teeth; and at 2½ years the entire set should be cut. There is considerable variation, both as to the order in which they appear and in the time, so that the mother need not be alarmed if her baby does not follow the average as above stated, but if he has no teeth at the end of the first year he can hardly be said to be developing properly. Probably the diet is at fault, or some disease is retarding growth. In such a case the doctor should be consulted. Racial and family traits account for some of the differences.

This set of teeth is replaced by the permanent set, beginning about the sixth year. A child should be taken to the dentist for examination of the first teeth. It sometimes happens that the milk teeth are so firm they do not fall out, but, remaining in the jaws, crowd back the second set and cause them to come in misshapen and irregular.

Growth.

During the second year the baby should have dry, hard foods on which to chew. It is important to the development of strong, healthy teeth and jaws that they shall have exercise in biting and chewing. There is sometimes a tendency to keep a baby too long on an exclusively soft diet for fear that solid food will upset him. Begin

by giving the baby when about a year old some dry, hard crust or toast, or hard crackers, at the end of a regular meal, but a baby should always be carefully watched when given hard food. During the second year other kinds of food requiring chewing may be gradually added to the diet list and taken as part of the regular meals.

Care.

It is generally believed that much of the health of the second teeth depends upon the care that is given to the first set. At least as soon as the molars make their appearance, the teeth should be gently cleaned each day with a soft brush. As the baby grows into childhood he should be taught the daily care of his own teeth, although no child can be depended upon to do this without oversight.

FEET.

A very large part of adult human suffering is due to deformities which have their origin in infancy and childhood, when the bones of the feet are pressed out of shape by ill-fitting shoes.[5] Mothers should examine the baby's feet frequently for creases in the soft flesh or red spots, indicating pressure from the shoes. The toenails, like the finger nails, should be cut square across, taking great care not to cut too close to the flesh.

Both shoes and stockings should always be loose and long enough on the feet so that the toes are not crowded. Probably the greatest fault is to have them too short, thus turning the toes under or pressing them to one side. All shoes should conform to the natural outlines of the foot, with soles whose inner line is nearly straight and which allow an abundance of room for the toes to spread out flat. If the toes are found to be overlapping, or when creases or red spots appear plainly on the feet, the shoes that have caused the trouble should be discarded.

Patent leather, being covered with an impervious varnish, causes the skin to perspire, and is entirely unsuitable for children's shoes, save possibly for the dress-up shoes or slippers which are worn for a little while at a time in the house.

DEVELOPMENT OF THE NORMAL BABY.

An inexperienced mother is often greatly at a loss to know whether a baby is thriving or not, and may be unduly alarmed by small matters, or may not understand the serious nature of certain conditions. It may be helpful to mention the leading characteristics of a normal, healthy baby, and the mother may assume the lack of these conditions to show that, temporarily or otherwise, the baby is not in perfect health:

[5] Directions for fitting shoes to a child's feet are given in the third bulletin in this series, Child Care: The Preschool Age. A copy will be sent upon request. Address Children's Bureau, U. S. Department of Labor, Washington, D. C.

A good appetite.
Absence of vomiting or regurgitation.
Bowel movements of the normal number, color, and consistency.
A steady gain in weight.
Clear skin.
Bright, wide-open eyes.
Alert, springy muscles, which respond readily to any stimulus.
A contented expression.
Very little crying.
Quiet, unbroken sleep, with eyes and mouth closed.
No evidence of pain or discomfort.
A constant growth in stature and intelligence.

Other points in a normal development are:

The soft spot at the back of the head closes at about 6 weeks, and the one on the top when the baby is from 1½ to 2 years old.
Nearly all babies have blue eyes at birth, but the permanent color appears in the first few weeks.
The baby probably begins to recognize objects at about 6 to 8 weeks, and can focus his eyes on an object when about 3 months old. He rarely sheds tears before this time.
Hearing, in the sense of knowing where a sound comes from, does not develop until the baby is about 2 months old.
The baby learns to hold up his head when the body is supported during the fourth month.
He laughs aloud from the third to the fifth month.
He reaches for toys and holds them from the fifth to the seventh month.
At 7 or 8 months of age he is usually able to sit erect, and usually creeps.
During the ninth and tenth months he makes the first attempts to bear the weight on the feet, and can usually stand with assistance at 11 or 12 months.
He begins to walk alone in the twelfth and thirteenth months and walks alone at the fifteenth or sixteenth month.
At 1 year of age usually a few words can be spoken, and at the end of the second year he makes short sentences.

Normal children differ considerably in the rapidity of their development, some being slower and some faster; therefore the mother should not be alarmed at variations from this statement, although marked differences should put her on guard. It is rarely wise to push the development of the normal baby.

HOW TO WEIGH THE BABY.

Undress the baby completely. Put a soft cloth in the pan of the scales and lay the baby on it, or wrap the baby in a blanket if the room is not warm. Weigh carefully and write down the result. Remove the baby, weigh the blanket or cloth, and subtract this amount from the first weight.

When weighing the baby before and after nursings to determine the amount of breast milk he is receiving, do not undress him, but

weigh both times in exactly the same clothing. If the diaper becomes wet or soiled meantime, do not change it until after the weight has been taken. (See p. 74 for normal weights.)

OUTDOOR LIFE.

Keep the baby out of doors. Except in winter, begin when he is 2 weeks old to take him out for a few minutes every day in mild, pleasant weather, increasing the time gradually until he is staying out most of the time. Hardly anything will do more to insure a healthy babyhood than this, and the result will well repay whatever trouble is necessary to secure it. With the exceptions mentioned below, a baby may spend practically all the time out of doors, both sleeping and waking, if there is some one to look after him to see that he is protected against sun, wind, extremes of temperature, storms, dangerous insects, and accidents. A young baby may stay in his carriage or crib on the porch, on the roof, under the trees, or in the back yard, where the busy mother can look after him; older babies who need exercise may be kept in a creeping pen either on the porch or in the yard. (See p. 35.) If it is not feasible to provide outdoor sleeping places, at least the windows of the nursery should be kept wide open most of the year.

When not to take the baby out.

No baby should go out in below-zero weather. When the temperature is lower than 20 degrees above zero (except during the height of bright days), or when there is a heavy storm in progress or a high wind blowing quantities of dust about, it is best to give the baby his airing indoors or on a protected porch. Dress him as for going out, open all the windows wide, and let him remain in the fresh air for some time. Very young or delicate babies require much warmth and must be well covered to protect them from chill. A baby under 3 months of age should not be taken out in severe weather.

When it is excessively hot the baby should be taken out early in the day, then kept indoors during the hottest part of the day.

EXERCISE.

The normal baby exercises his body constantly. The young baby throws his arms and legs about quite aimlessly; he closes and uncloses his hands; and stretches and twists his neck. As he grows, he is in almost constant motion during his waking hours if he is healthy, thus giving every muscle and bone in his body the exercise it needs for growth. A baby who is "swaddled," or one who is so wrapped about with clothing, shawls, and blankets that he can not move every part of the body freely, will be hampered in getting this natural exercise. For this reason, also, the older child should not be left in

his high chair or carriage for any length of time, nor be fastened by his clothing or bed covers in such a way that he can not turn his body or throw his limbs about as he wishes.

Creeping pen.

A creeping pen affords the necessary protection and gives room for exercise. It consists of a fence made in four sections, each 18 inches high and 4 feet long, hinged at three corners and latched at the fourth. Ready-made pens have spindles like a stair rail, so that the baby may have something to take hold of when he tries to climb to his feet. As it folds together, the pen can be readily moved about. The floor of the pen should have a washable cover tied to the corners by strong tapes. Denim or ticking may be used. A combination bed and play pen, the sides of which are covered with wire netting, is on the market. It has also a spring and mattress and is covered below with netting. The bed has a cover which protects the baby from flies and mosquitoes. It is fitted with casters or wheels, so that it may be moved about readily. It may be folded up when not in use.

When it is not possible to purchase one of the ready-made articles an ingenious person may devise a satisfactory play pen from materials at hand, or a smooth board 6 or 8 feet long and a foot wide may be used to fence off a sunny corner of the nursery for a pen.

Baby pushers.

Baby walkers should not be used; babies should not be encouraged to walk until they are quite ready for it. Too early walking may cause bowlegs; also, the baby is held for too long a time in a confined space and in a more or less rigid position and is easily overtired. A "pusher" may be made at home, which is free from these objections. This consists simply of a small weighted platform made of 2 by 4 plank or weighted on the under side with a strip of metal 12 inches wide by 18 inches long, mounted on four casters. A handle like that on a baby carriage is attached to the ends of the platform, slanting backward so as to come within reach of the baby. He should be able to grasp it easily as he stands. This contrivance will give him some support in learning to walk, yet he may drop down to rest at any moment.

Vehicles.

The choice of a vehicle is a matter of great importance. The folding cart, which may be taken on the street cars, permits mother and baby to go out many times when it would not otherwise be possible. The great convenience of this cart can not be denied; but such carts should be used only for the purpose for which they are intended, namely, to convey the baby short distances, and not as pleasure

vehicles; nor should the baby be left to sit in one of these small carts for any great length of time.

Some of the gocarts of the present day are so small, stiff, and ill adapted to the baby's anatomy that they can hardly be recommended even for temporary use. Also, they are so close to the ground that the child is propelled through only the lower and colder air currents, which fling an unending stream of germ-laden dust off the street into his face. They frequently have no cover with which to shield the baby from heat or cold, or sun or wind, and in cold weather it is impossible to keep him sufficiently warm. The best vehicle for ordinary use about the home is one which is at least 2 feet high. It should have room for the baby, with the necessary wrappings, in any position, and a cover that can be readily adjusted to secure the needed protection; it should have strong, well-balanced springs, and stand squarely on four wheels. For the baby who sits up a safety strap which fastens about his waist gives greater protection than the ordinary carriage strap.

Carriage outings which are, at best, not an unmixed advantage to the baby, often afford the only available means for giving him the outdoor air. The lack of exercise and the more or less rigid position maintained for considerable periods of time is wearisome. Also it is no doubt true that a baby sent out in charge of another child or of some person not altogether competent to judge of his comfort is often neglected. A more wholesome and natural place to give the airing is in the yard or on the porch, where he can be under the mother's supervision.

Caution.

A word of caution is necessary as to the danger of young children climbing up to open windows and falling out. Window screens should be so carefully fastened in that there is no possibility of pushing them out. When screens are not in use, the windows should either be lowered from the top or thin wooden slats should be fastened across the lower sash. Similar precautions must be used if the baby is put to sleep on the fire escape.

The baby's eyes and head should always be carefully shielded from the direct sunlight, and this is just as important while he is asleep as while awake. Do not allow him to lie staring up into the sky, even when the sun is not shining.

Great care should be taken to protect the baby from flies and mosquitoes. If the house is not provided with screens, the bed, crib, or carriage should be covered with netting suspended over a pole or clothesline in the form of a tent, so as not to shut off the air. Never lay a netting in contact with the baby's face

PLAYING WITH THE BABY.

A few minutes of gentle play now and then will not harm the normal baby. A young, delicate, or nervous baby needs a great deal of rest and quiet, and however robust the child, much of the play that is commonly indulged in is more or less exciting. It is a great pleasure to hear the baby laugh and crow in apparent delight; but often the means used to produce the laughter, such as tickling, punching, or tossing, make him irritable and restless.

The mother should not kiss the baby directly on the month, nor permit others to do so, as infections of various kinds are spread in this way. Rocking the baby, jumping him up and down on her knee, tossing him, shaking his head or carriage disturb him, and make him more and more dependent upon these attentions. But this is not to say that the baby should be left alone too completely. All babies need "mothering," and should have plenty of it. When the young baby is awake he should frequently be taken up and held quietly in the mother's arms, in a variety of positions, so that no one set of muscles may become overtired. An older child should be taught to sit on the floor or in his pen or crib during part of his waking hours, or he will be very likely to make too great demands upon the mother's strength. No one who has not tried it realizes how much nervous energy can be consumed in "minding" a baby who can creep or walk about, and who must be continually watched and diverted, and the mother who is taking the baby through this period of his life will need to conserve all her strength, and not waste it in useless activity.

TOYS.

Since a baby wants to put everything in his mouth, his toys must be those that can safely be used in this way. They should be washable and should have no sharp points nor corners to hurt the eyes. Painted articles and hairy and woolly toys are unsafe, as are also objects small enough to be swallowed, and those having loose parts, such as bells and the like.

Rubber toys, which may be washed, are excellent for a baby. Floating toys of celluloid are of great interest, but the baby will bite them to pieces unless he is watched.

A child should never have so many toys at one time as to distract his interest. He will be quite satisfied with a few things, and a handful of clothespins, for example, will often please just as much as an expensive doll or other toy. It is an excellent plan to have a box or basket in which to keep empty spools and other household objects which will amuse the baby.

Among these articles are:

A string of spools.
A spoon—wood, tin, or aluminum.
A pie tin to pound.
A string of wooden beads.
Talcum powder cans (empty).

Since everything goes into the baby's mouth, and all his toys are thrown on the floor, they should be frequently washed and, when possible, boiled, to keep them sweet and clean.

NURSEMAIDS.

It may be well to speak a word of warning as to nursemaids. One has only to visit the parks of any city on a pleasant day to note the instances of neglect and carelessness on the part of nursemaids toward the babies in their charge. Infants are allowed to lie with the sun shining in their eyes; are permitted to become chilled, tired, or hungry, or to lie in wet diapers; they are scolded or jerked about by one arm or fed with candy, cakes, or other unsuitable foods to keep them contented. When at home they may be left strapped in high chairs for long periods, or without the mother's knowledge may be given soothing sirups or other quieting medicines.

But it is not only in physical matters that grave harm may be done to the baby. A nurse sometimes threatens that the policeman, the doctor, or it may be a wholly imaginary creature or person, will come, if necessary, to enforce her will. It is often almost impossible to eradicate fear instilled thus early in the impressionable mind of a child. The mother must be on her guard to prevent this. A too rigid obedience to the nurse should always be viewed with suspicion, and although there are, of course, many thoroughly honest and conscientious nursemaids, entirely devoted to the children in their care, no mother can afford to run the risk involved in neglecting to investigate the character of the nursemaid whom she engages. Every nursemaid should be carefully examined by a physician as the baby may readily become infected from an attendant suffering from communicable diseases.

CHILDREN AS CARETAKERS.

In many families the older children are the caretakers of the baby, and in many cities the girls in the grade schools are taught how to take good care of the baby. Girls thus taught are, of course, of very great help to a busy mother. But there is danger that the time for play and pleasures which they need in their own healthy growth may be thus used. Mothers should remember that young boys and girls absolutely need a certain amount of free play, preferably out

of doors, unless they are to be stunted and weakened, and should see that they are not imposed upon by the too constant care of a baby. They should also remember that a fat baby is a heavy load for anyone to carry, and that the slender frame and tender bones and muscles of a young girl may be easily bent and injured by lifting and carrying the baby. On the other hand, older sisters and brothers may very well learn to look after the baby some part of every day or to take him out in his carriage while the mother has a chance to rest or to go out. When necessary, written directions for particular care should be left by the mother, but the general rules regarding the baby's food, sleep, and airings should be the common knowledge of the whole family.

THE BABY'S VACATION.

In the early summer the trains and boats carry thousands of families to the seashore, the mountains, or the farms for their annual vacations from the hot and crowded cities. Whether this change from city to country life is beneficial or not depends largely upon the sort of living conditions into which the children go, the character of the milk and water supplies, and the sanitary standards of the place. The mother should select, if possible, a place where a water closet or some other form of sanitary privy is in use. In going to a new place, it is best to boil all the drinking water and the milk for the baby. The doors and windows, and, if possible, the porches, should be screened. If the house is not screened the mother should use a cotton netting in order that the baby's crib, at least, may be protected from insects.

Traveling with young children.

If a trip with young children is an absolute necessity it should be carefully planned. Berths and seats should be reserved in advance and accurate information as to leaving and arriving times of all the trains and boats concerned should be secured. The easiest child to travel with is the young breast-fed baby. His food is all ready for him, and usually he sleeps most of the time. The older, restless, bottle-fed baby presents the greatest problem. His milk should be prepared, boiled, and packed in ice before starting on the journey, unless powdered or condensed milk is used. (See p. 64.)

To sterilize, stand the filled bottles in a kettle over the fire and let the water boil about them for an hour and a half. After boiling, the bottles should be cooled as rapidly as possible and then chilled by standing them in a pail of cracked ice. They may then be packed in a small portable refrigerator. Many types of these have been

devised and may be purchased, but a simple ice box may be made at home as follows:

Use two covered tin pails, one an inch or two smaller than the other, so that it may stand inside the larger pail. Fill the space between the two with sawdust, put the bottles with cracked ice in the inner pail; cover both tightly, and make a canvas or flannel cover for the whole. For a 24-hour trip, milk may be carried in a vacuum bottle if desired. The milk should be boiled, then thoroughly chilled before being put into the bottle which must be thoroughly cleaned and scalded. Each feeding bottle must be filled and warmed as needed.

To warm the bottle for the baby, the mother should provide herself with an enameled-ware pitcher holding a pint, which the porter will fill with hot water from the dining car. Stand the bottle in it to heat after the water has cooled a little so that the sudden heat will not be sufficient to break the bottle. A bottle warmer with a small stove heated by solid alcohol may be safely used on a journey. A metal tray should always be used under the lamp.

Dry milk is satisfactory to use for travel. (See p. 64.)

A separate bag or basket lined with rubber sheeting should be provided for the diapers, and with them may be packed a small enameled-ware chamber. For a young baby a number of inner pads of soft paper or old cloth which can be destroyed should be provided. When one of these is soiled, wrap it in newspaper and destroy it. Wet diapers may be tightly rolled and kept in the rubber bag.

In the hot summer weather, for a long journey, the older baby should be dressed only in the sleeveless gauze shirt and diaper, with one thin outer garment. A short-sleeved, low-necked slip of white china silk is cooler than cotton, sheds the dust, and can be washed out in the basin when soiled. Warmer clothing should be at hand to slip on at once if the day suddenly cools.

It is well to change the baby's clothing as soon as the journey begins in order to have the regular outfit clean to put on when leaving the train. The little baby may go barefooted, but an older child should have barefoot sandals to protect the feet from the cinders scattered over the floor.

The usual regular hours for feeding the baby should be observed. Mothers sometimes give the baby cakes, candy, bananas, sweet crackers, and the like, to keep him quiet in the train. Irregular feeding with unsuitable foods, together with the fatigue and excitement of traveling, are very apt to make the baby irritable if not actually ill.

CARE OF THE CITY BABY.

Taking care of a baby is made more difficult for the city mother by overcrowded houses, lack of fresh air, sunshine, and open spaces

for play and out-of-door life. This is particularly true in hot weather. During the summer months in most of the larger cities there is an enormous increase in sickness among babies, many of whom fail to survive this period. These well-known facts have led to the establishment in many cities of what are known as health centers. These rooms are in charge of trained nurses and physicians, and any mother who desires may bring her baby for examination and advice. Nurses are sent out from these stations to teach and advise mothers in their homes.

The object of these centers is to keep babies well by watching them closely and by teaching the mothers how to take care of them. If a baby is found to be sick the mother is referred to her own physician, if she has one. If not, she is usually sent to a dispensary. The principal factor in keeping the baby well is to have him properly fed. Accordingly, the physician who cares for the baby should direct this very carefully. If the mother has no physician, the station doctor will examine the baby and order a diet for him. The nurse assists the mother in following out his directions, and visits her in her home for this purpose. These stations are sometimes maintained by the city and sometimes by a private society. The mother can find out the location of the station nearest her home by inquiring at the city health office.

CARE OF THE COUNTRY BABY.

The country mother is now able, in many places, to have the help and advice of a county or community public health nurse. Frequent health consultations, held at fairs, or at the county seat, or in other centers, as well as the traveling clinic and consultation car, are all beneficial agencies which are becoming more and more usual in rural districts of many States.

SUPERSTITIONS.

Many superstitions have grown up around the mother and the baby. Some of these have had their origin in long past ages; others spring up from time to time. Most of these beliefs are of no value, and many are silly, even dangerous. One of these foolish traditions is that biting (instead of cutting) the baby's finger nails will prevent him from becoming a thief. Another, that his condition is affected by the phase of the moon; another, that wearing charms and amulets of various kinds will ward off disease, or that ill luck will follow if the baby looks in the glass. No modern mother, intelligent enough to read, should allow herself to be influenced by any of these or similar tales. The proper care of the baby consists in applying certain scientific health principles which have been reduced to working rules by specialists and made available for all mothers. These fundamental

rules are not shrouded in any sort of mystery. They are plain and easy to understand and may be learned and used by the average mother.

It frequently happens that a young mother has so much advice from earnest and entirely well-meaning friends that she is bewildered, especially when one person's directions conflict with those of another. In some cases, of course, this advice may be of the wisest and best; but in all cases she should have some standards of her own against which to measure what she is told. Her physician and nurse should be her first guides; later, in addition, she should have at least one book of recognized value to consult when she is in doubt. The proper development of the average baby follows a normal course; and, when the baby's growth is not proceeding as it should, the doctor should be consulted and his advice carefully followed. Above all, the baby should not be experimented upon first with one mode of care and then another, in accordance with the various opinions offered. Baby care is a great art and a great science; it is also the most important task any woman ever undertakes, and she should apply to this work the same diligence, intelligence, and sustained effort that she would give to the most exacting profession. It will only be when the profession of parenthood is thus dignified that children will come into their full inheritance of health, efficiency, and happiness.

HABITS, TRAINING, AND DISCIPLINE.

Habits are the result of repeated actions. The wise mother strives to start the baby right. A properly trained baby is not allowed to learn bad habits which must be unlearned later at great cost of time and patience.

Systematic care.

In order to establish good habits in the baby, the mother must know what they are and how to induce them. Perhaps the first and most essential good habit is that of regularity. This begins at birth and applies to all the physical functions of the baby—eating, sleeping, and bowel movements. The care of a baby is readily reduced to a system unless he is sick. Such a system is not only one of the greatest factors in keeping the baby well and in training him in a way which will be of value to him all through life, but it also reduces the work of the mother to the minimum and provides for her certain assured periods of rest and recreation.

Training the bowels.

This may be begun as early as the end of the first month.

The first essential in bowel training is absolute regularity. As soon as the mother takes charge of her baby after confinement she

should begin upon this task. It is one which requires unlimited patience, but the result is well worth the effort involved. Almost any baby can be so trained that there are no more soiled diapers to wash after he is a year old, and many mothers accomplish the result much earlier than this. The habit of regular evacuation thus established in infancy will, if persisted in through the growing years, save endless misery from constipation in the adult. The mother should observe the hour at which the baby soils his diaper. At the same hour the next day she should hold him over the chamber, using a soap stick, if necessary, to start the movement, and thus continue day after day, not varying the time by five minutes, until the baby is fixed in this habit. As the baby grows he can be taught to grunt, to bear down a little, or to show his desire by some other sign.

This training is begun by different methods. One of these is as follows:

The baby should be held on the mother's lap, or laid on a table with his head toward her left, in the position assumed for changing the diaper. The feet should be lifted with the left hand while a soap stick[6] or other suppository is inserted into the rectum with the right hand. Still holding the feet up, press a small chamber gently against the buttocks and hold it there until the stool is passed. The stool will come in a few minutes.

Another method is to hold the chamber in the lap and place the baby over it with his back against the mother's chest. This makes it possible for the mother to support the young baby before he is strong and able to sit alone. As soon as a baby is able to sit up and hold himself he should be taught the use of the nursery chair.

A convenient time for a stool is just before undressing for bathing.

After the first three or four days, or as soon as possible, omit the suppository. At first it will be necessary to wait longer for the stool, possibly five or ten minutes.

This training will require much time and patience on the part of the mother, but, in the end, the habit thus formed will be a great saving of trouble to her and of untold value to the child, not only in babyhood but also throughout the whole of life.

Training the bladder.

It takes longer to teach the baby the control of his bladder, but the method to be followed is the same as with the bowel training. The baby should be given the chamber very often, perhaps once an

[6] To make a soap stick take a piece of firm white soap half an inch thick and about 2 inches long and shave it down toward one end until the point is about one-quarter of an inch thick and rounded perfectly smooth. Wet the soap stick or dip it in vaseline before using it. Hold the stick by the thick end, insert the other end in the rectum. Gluten, cocoa butter, or glycerin suppositories may be purchased at a drug store and are accompanied by directions for their use. Glycerin suppositories are too irritating for continued use with a baby.

hour, at least, while awake, and gradually led to indicate his desire. One device for teaching the baby not to wet is to put him into drawers very young, discarding the diaper much earlier than is usually done. The warm, thick diaper constantly suggests to the baby the idea of wetting and no doubt retards his training in this regard. He will not like the feeling of the wet, cold drawers, and there will be nothing about them to suggest wetting, but rather the reverse.

Cleanly habits.

Children should be taught very early that it is not safe to use a handkerchief that has been used by someone else, and for similar reasons the use of individual towels and wash cloths should be insisted upon. Every effort should also be made to teach a child to keep his fingers out of his mouth and nose.

Bad habits.

Some of the bad habits which a baby learns are these.

Crying.—Crying should not be classed as a bad habit without some modification, for although a well baby does not cry very much, he has no other means of expressing his needs in the early months of life, and his cry ought to be heeded. But when he cries simply because he has learned from experience that this brings him what he wants, it is one of the worst habits he can learn, and one which takes all the strength of the mother to break. Crying should cease when the cause has been removed. If the baby cries persistently for no apparent cause, the mother may suspect illness, pain, hunger, or thirst. The first two of these causes will manifest other symptoms, and the actual need for food may be discovered by frequent weighing. But if, after careful scrutiny of all these conditions, no cause for the crying can be found, the baby probably wants to be taken up, walked with, played with, rocked, or to have a light, or to have some one sit by him—all the result of having learned that crying will get him what he wants, sufficient to make a spoiled, fussy baby, and a household tyrant whose continual demands make a slave of the mother. It is difficult to break up this habit after it has once been formed, but it can be done. After the baby's needs have been fully satisfied he should be put down alone and allowed to cry until he goes to sleep. This may sound cruel, and it is very hard for a young mother to do, but it will usually take only a few nights of this discipline to accomplish the result. In some cases persistent crying may be due to causes not readily discernible by the mother; in this event, the opinion of a good doctor as to the cause of the crying should be sought. There is little, if any, danger that crying will cause rupture.

"*Pacifiers*" *or* "*comforts.*"—The extremely bad habit of sucking on a rubber teat, or a sugar ball, or a bread ball, or any other article is one for which some one else is entirely responsible. The baby does

not teach himself this disgusting habit, and he should not have to suffer for it. Some of the evil effects ascribed to this habit are that it spoils the natural arch of the mouth by causing the protrusion of the upper jaw; it induces a constant flow of saliva and keeps the baby drooling; the pacifier is never clean and may readily carry the germs of disease into the baby's mouth; and last and least, it is a habit which is particularly disfiguring to the baby's appearance. No such object should ever be permitted in the baby's mouth.

Thumb or finger sucking.—This is another habit leading to the same results as the use of pacifiers, but one which the baby may acquire for himself, although it is frequently taught to him. To break up either habit requires resolution and patience on the part of the mother. The thumb or finger must be persistently and constantly removed from the mouth and the baby's attention diverted to something else. The sleeve may be pinned or sewed down over the fingers of the offending hand for several days and nights, or the hand may be put in a mitten made from drilling or other hard cloth. Ill-tasting applications have very little effect. There are patent articles sold in the stores for keeping the hand from the mouth; also celluloid cuffs which make it impossible for the baby to bend his arms at the elbow, but the persistent covering of the hand often works very well. It should be set free now and then, especially if the baby is old enough to use his hands for his toys, and at meal times, to save as much unnecessary strain on his nerves as possible, but at bed or nap time the hand must be covered.

Bed wetting.—It requires great patience and persistence on the mother's part to teach the baby to control the bladder. Some babies may be taught to do this during the day by the end of the first year, but it is ordinarily not until some time during the second year that it is accomplished. Few habits among older babies and young children, as well as older ones, are so vexatious, so difficult to cure, and so consuming of time as that of bed wetting. In some older children this habit may be due to nervous troubles of various kinds, but in the great majority of cases it is merely the carrying over of the infantile habit into childhood because of the lack of early and persistent training in bladder control. Mothers who realize this will know that, whatever the trouble involved in the training, it is nothing compared to the annoyance caused by this habit, and will therefore be reconciled to the task. If it persists in children 3 years old and over, bed wetting may be due to some physical weakness and a doctor should be consulted. In ordinary cases it may suffice if no liquid food is given in the late afternoon and if the baby is taken up the last thing before the mother retires.

Masturbation.—This is a common habit among children, practiced by rubbing the genitals with the hands, or by rubbing against various

objects. If the baby is seen to be carrying on this habit every effort should be made to break it up as soon as possible, as it grows worse if left uncontrolled. It may be due to lack of cleanliness, or to some local condition which irritates the sensitive parts; and, for this reason, it is well to have the baby examined by the doctor. The treatment consists almost entirely in imposing mechanical restraints, and in great attention to keeping the parts clean. Wet or soiled diapers should be removed at once and the parts made clean and dry. A thick towel or pad may be used to keep the thighs apart while the baby is asleep, and the hands may be restrained by pinning the night-gown sleeves loosely to the lower sheet when putting the baby down for the night. Such a baby should not be left awake alone in bed. Constant and patient watchfulness on the mother's part are required to break up this habit. Punishment is worse than useless.

Punishment.

Harsh punishment has no place in the proper upbringing of the baby. A baby knows nothing of right or wrong, but follows his natural inclinations. If these lead him in the wrong direction the mother must be at hand to guide him in another and better one and to divert his eager interest and his energy into wholesome and normal directions. This is the golden rule in the training of babies, and one which applies to the training of children of all ages. Many parents conceive that their whole duty is to thwart and forbid, enforcing their prohibitions with penalties of varying degrees of severity, forgetting that they are dealing with a sensitive being endowed with all the desires, inclinations, and tendencies that they themselves have, and that if these natural feelings are continually suppressed and thwarted they are sure to seek and find some outlet for themselves. A child who is often punished may be so dominated by fear of his parents that, the natural expression of his vital interests being denied him, he becomes sullen and morose as he grows older.

Early training.

The training in the use of individual judgment can be begun even in infancy; a child should early be taught to choose certain paths of action for himself; and if he is continually and absolutely forbidden to do this or that he is sometimes seriously handicapped later, because he does not know how to use his own reasoning faculties in making these choices. On the other hand, obedience is one of the most necessary lessons for children to learn. A wise mother will not abuse her privilege in this respect by a too-exacting practice. For the most part she can exert her control otherwise than by commands, and if she does so her authority when exercised will have greater force, and instant obedience will be more readily given.

Most of the naughtiness of infancy can be traced to physical causes. Babies who are fussy, restless, and fretful are usually either sick or ailing, have not been properly fed and cared for, or have been indulged too much. On the other hand, babies who have the right food, who are kept clean and have plenty of sleep and fresh air, and who have been trained in regular habits of life, have no cause for being "bad" and are therefore "good."

It must not be forgotten that infancy is a period of education often of greater consequence than any other two years of life. Not only are all the organs and functions given their primary training, but the faculties of the mind receive those initial impulses that determine very largely their direction and efficiency through life. The first nervous impulse which passes through the baby's eyes, ears, fingers, or mouth to the tender brain makes a pathway for itself; the next time another impulse travels over the same path it deepens the impression of the first. It is because the brain is so sensitive to these impressions in childhood that we remember throughout life things that have happened in our early years while nearer events are entirely forgotten. If, therefore, these early stimuli are sent in orderly fashion, the habit thus established and also the tendency to form such habits will persist throughout life.

BREAST FEEDING.

IMPORTANCE OF BREAST FEEDING.

The food necessary for the normal, healthy development of every infant mammal, including the human species, is created for it in the breast of its mother. The milk of each animal is different from that of every other, and each is especially adapted to the needs of the young of that species.

The first year of life is the year of greatest growth and development. The baby must adapt himself to entirely new conditions. All his organs must learn to function. The way a baby is fed during this period either helps him to live and to become strong and healthy, or makes his growth and development much more difficult. Breast feeding helps him more than any other one thing.

Breast feeding provides the substances exactly adapted to produce normal growth and development, besides being the cheapest and most convenient way to nourish a baby. There is no food "just as good" as mother's milk. Mother's milk prevents certain diseases and protects the baby from others.

The death rate of infants who are breast fed for the first months of life is much lower than among babies who are artificially fed during this period. If every mother realized how perilous the first months after birth are to her infant, and how great a protection

breast feeding is, few babies would be artificially fed, and, as a result, the number of infant deaths would be greatly lessened.

Practically every mother, with proper instruction as to the care of her own health, can nurse her baby and thus provide him the food exactly adapted to his needs. Only protracted maternal illness of an infectious nature should prevent her from nursing her baby.

PRODUCTION OF BREAST MILK.

The first secretion of the breasts, called "colostrum," is a thick, yellowish fluid which is adapted to the first needs of the baby. It is important to put the baby to the breast at regular intervals, as this stimulates the production of true milk.

Colostrum changes gradually into true milk, which is thinner and bluer. Usually the milk flow is well established after a week.

As the child grows the amount of milk secreted gradually increases in response to his demands. At the beginning of a nursing some milk is in the breast, but most of it is actually formed during the act of nursing. The quantity which the baby obtains at a feeding depends largely on the vigor, strength, and persistence with which the infant sucks. Emptying the breast completely by regular nursing helps more than anything else to produce milk.

The amount and quality of milk produced depends not only upon the demands of the baby, but also on the diet and hygiene of the mother.

The length of the period during which the mother produces milk varies considerably. Women of certain races nurse their babies much longer than others; also, circumstances may lengthen or shorten this period. Many women can nurse their babies at least a year, but the average infant usually needs additional food after the sixth month, although if gaining satisfactorily this may not be necessary before the eighth or ninth month.

CARE OF THE NURSING MOTHER.

Diet.

While the mother is in bed she should have a light, nourishing, varied diet of not more than four meals in 24 hours. After the mother is out of bed she may then take her accustomed diet, provided it is sufficiently nutritious. A nursing mother needs an abundance of good, simple, nourishing food. It is usually best for her to take food only at meal times and to take nothing but water between meals. Eating between meals usually upsets the stomach and in the end the mother gets actually less nourishment than if she eats only four regular meals. The meals should be simple and well cooked, and at the end of each

meal the mother should drink a large glass of milk. The fourth meal, at bedtime, should consist of milk or a bowl of corn meal or other gruel, or some other simple, easily digested food. One quart of milk in some form and one quart of water should be taken daily. One cup of coffee or tea a day at mealtime is allowable.

The mother may eat anything she can easily digest. The old-fashioned belief that nursing mothers can not take certain foods, such as acid fruits or vegetables, for fear of upsetting the baby, is no longer held. Occasionally a certain food may distress a particular baby. When this has been proved it should be eliminated from the mother's diet.

Bowels.

Constipation is very common in the case of the nursing mother and must be guarded against. The excessive use of cathartics may cause diarrhea in the baby. Every effort should be made to regulate the bowels through the food. Coarse vegetables and fruits, particularly figs and prunes, are helpful. Bran bread, bran muffins, or a tablespoonful of bran added to the morning cereal, will usually correct constipation.[7] A glass of cold water the first thing in the morning often helps. Regularity of habits is most important, and a definite daily hour for the stool should be established.

Baths.

A daily bath is urgent during the nursing period, not only for cleanliness but to assist the action of the skin. The mother at this time perspires very freely and efforts should be made to keep the body free from odors of perspiration and stale milk. For the same reasons, frequent changes of linen are desirable.

Sleep.

Sufficient sleep is most necessary for the nursing mother. As soon as possible the baby should be given only one nursing between 6 p. m. and 6 a. m., so that the mother may have a long, unbroken sleep. At least eight hours' sleep at night and one hour's rest during the day are desirable for every nursing mother. A tired mother can not produce the proper food for her baby.

If the baby is not trained to sleep at night, or if he is fretful, it is better for some one else to sleep in the same room with him or to get up with him at night, in order to save the mother's strength. Even when the mother must take charge of the baby at night, the baby must always sleep in a bed by himself, and it is better, after the early weeks, for him to sleep in the next room.

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[7] See recipe for bran muffins, p. 101.

Work.

The mother should not overwork during the nursing period. Often mothers who have plenty of milk for their babies at first find that the amount of their milk is greatly reduced when they go back to their household duties. Many mothers must work hard during the nursing period, but work should be resumed gradually. Most mothers are not strong enough to undertake their regular duties until at least six weeks after childbirth. By this time the milk flow is established.

Fatigue from overwork should be avoided by short rests between tasks. Oftentimes lying down for five minutes every hour will enable the mother to accomplish much more work than she would otherwise be able to do safely. To secure more rest it is well for the mother to nurse her baby in a semireclining or other comfortable position. This will give the mother 15 or 20 minutes' complete relaxation every few hours. Neither the mother nor the baby should be allowed to fall asleep before the nursing is finished.

Fresh air and exercise.

Moderate exercise in the open air and sunshine, especially walking, is necessary to good health and quiet nerves in a nursing mother. If a mother has a great deal of work inside the house, she will not have the strength for much walking or other exercise outdoors, but she should make it a practice to spend some part of every day outdoors. Mothers who enjoy a vigorous walk will find this good exercise for this period, if not carried to the point of weariness. Gardening is usually agreeable if not overdone.

Fresh air indoors is needed both by mother and baby for good health, and sleeping and living rooms should be kept well aired.

Recreation.

Some form of recreation, amusement, or pleasure is good for everyone. The over-conscientious mother who stays at home watching her baby all the time does not do the best thing for her child. Outdoor life and pleasant recreation which are not exhausting but which keep the mother happy and contented are very beneficial. Worry, anger, or strong emotion should be avoided, as they may affect the milk. The mother must learn to control herself and to regulate her life for the best interests of her baby.

CARE OF THE BREASTS.

If the mother has the right care during pregnancy and the breasts and nipples have received proper attention, the nursing period will be shorn of much possible discomfort.[8] The object in the care of the

[8] See Prenatal Care, p. 14.

nipples during pregnancy is to draw them out so as to be easily grasped by the baby. During the nursing period the nipples must be kept as clean and as soft and flexible as possible to prevent cracking.

The nipple and the adjacent part of the breast should always be washed off before and after each nursing with clean boiled water, and dried. Between nursings the nipple should be covered with a clean, freshly ironed cloth, a piece of sterile gauze, or sterile cotton.

In some cases, when the milk first comes in, the breasts may become engorged and painful. Usually this rights itself without difficulty as soon as the relation between the supply and the demand is established. During this period of adjustment, beside limiting the fluids taken, the discomfort from engorgement may be relieved by lifting the breasts and keeping them partially under pressure by the use of a supporting breast binder. Regularity in nursing the baby is absolutely essential.

The breast binder is made from a straight piece of strong muslin, long enough to go around the patient and wide enough to reach from the armpits to the waist line. The patient should lie on her back to have the binder put on. The binder should be placed around the body with the ends in front. The breasts should be drawn upward, the cotton placed on the outside of the breasts, the ends of the binder lapped, and the binder pinned snugly down the front with safety pins. The fullness of the binder below the breasts should be taken up by making darts on both sides with safety pins. Shoulder straps are made by putting a strip of muslin over each shoulder and pinning the strips to the binder in front and behind.

If a binder is used in time and the mother takes little fluid in her diet for a few days it is rarely necessary to empty the breast by expression[9] or with a breast pump. Both of these methods tend to increase the production of milk, which is just what is not desired. If left alone, mild cases of caked breast will disappear without treatment. Unnecessary handling of the breasts should be avoided.

During the weaning period the supply of breast milk should gradually disappear as the demand is lessened. Should the breasts become engorged and painful, the fluids should be limited and the binder described in the above paragraph snugly applied to exert firm pressure on the breasts.

The first efforts of the baby in nursing often make the nipples sore. Great care must be taken to keep the nipples free from infection, or the tiny cracks of a sore nipple may develop into a fissure, resulting sometimes in a breast abscess. It is wise never to allow the baby's mouth to come in direct contact with a sore nipple. Most babies can draw the milk from the breast through a shield. When

[9] See section on expression of breast milk, p. 61.

the child either will not or can not use the shield, the milk should be expressed from the breast and fed to the child from a nursing bottle. The supply of milk can be maintained if the breasts are emptied completely and at regular intervals. The nipple shield should be cleaned thoroughly after nursing and boiled before using again. A cracked nipple may be treated by touching the crack with compound tincture of benzoin and keeping it covered with boracic acid ointment. A physician should be consulted for sore nipples or caked breasts.

TECHNIQUE OF NURSING.

During the first two weeks after birth the mother necessarily nurses her baby while lying down. While nursing in this position the mother should place the infant on the bed at her side. The baby must always be able to breathe freely while nursing, so the mother should keep the breast from covering his nostrils.

After the mother is about, the position for nursing should be as comfortable as possible, so that she may relax during the nursing period.

The mother must not be disturbed while nursing, and the baby should not be encouraged to play or be allowed to sleep while at the breast. The average time of nursing should be between 10 and 20 minutes. Occasionally a vigorous child may take enough in five minutes, or a feeble baby may nurse so slowly that it may take him 25 minutes or more to obtain a meal. If the milk is plentiful, only one breast should be nursed at a feeding, so that it may be completely emptied. This helps to produce milk. As the time for weaning approaches, or whenever the milk supply is scanty, it is often necessary to give both breasts at each feeding in order to satisfy the baby, but the breasts should always be emptied completely.

For the first 12 to 18 hours after delivery the mother should not be disturbed nor her rest broken by any attempt to nurse the baby. After this the baby should be put to the breast at regular intervals not oftener than every four hours during the day. By the third or fourth day there is usually plenty of breast milk for the baby. From this time on the baby should be nursed at regular three-hour or regular four-hour intervals and should be wakened to be fed at these times during the day. At night the mother may either let the baby sleep until he wakens for food, or, if this comes at an hour uncomfortable for her, she may wake him regularly for the night feedings also. As early as possible he should be allowed to go with only one feeding between 6 p. m. and 6 a. m.

It is important to teach the baby during the first days to take water, and he should be offered an ounce of boiled water two or three

times a day. It is better for the child not to have sugar added to this water.

Teaching the child to take food at regular hours and to be satisfied when fed only at these periods is the first important lesson the mother can impart. A baby is born with no habits. It rests with the mother whether the habits he acquires are good or bad. This early habit of "taking food by the clock" is most important, because the health of the baby and the comfort of the mother depend so largely upon it. From the beginning the mother or nurse must insist on the baby's waiting until the hour for nursing arrives. If this is persisted in, the average baby is trained by the second month to wake regularly for food and to sleep quietly most of the time between nursings.

FEEDING RULES.

Feeding intervals.

During second day, 4-hour intervals—5 feedings in 24 hours (6 a. m., 10 a. m., 2 p. m., 6 p. m., 10 p. m.).

Third day to third month, 3- or 4-hour intervals—6 or 7 feedings in 24 hours (6 a. m., 9 a. m., 12 m., 3 p. m., 6 p. m., 10 p. m., and 2 a. m., if necessary), or 5 or 6 feedings on a 4-hour schedule (6 a. m., 10 a. m., 2 p. m., 6 p. m., 10 p. m., and 2 a. m., if necesary). Unless the baby's gain can be accurately determined by regular weighing, it is safer to nurse the baby on a 3-hour schedule during the first two or three months of life.

Third month to sixth month, 3- or 4-hour intervals—6 feedings in 24 hours (6 a. m., 9 a. m., 12 m., 3 p. m., 6 p. m., and 10 p. m.), or 5 feedings on a 4-hour schedule (6 a. m., 10 a. m., 2 p. m., 6 p. m., and 10 p. m.).

During and after sixth month, 4-hour intervals—5 feedings in 24 hours (6 a. m., 10 a. m., 2 p. m., 6 p. m., and 10 p. m.).

Amount of food.

The amount of food a normal breast-fed infant takes in the 24 hours varies with the individual baby as well as with his age and size. During the first week the baby may take from 10 to 16 ounces a day; after that from 2 to 3 ounces a day for every pound of weight.

The amount which the baby takes at each nursing varies, but it depends largely on the demands of the child. The infant on a four-hour schedule usually takes more at a nursing than when on a three-hour interval, but he gets no more food in the 24 hours, as he has one less feeding.

GROWTH.

The weight at birth averages about 7 pounds. For the first few days the mother's milk is not sufficient for the baby to maintain his

weight or to allow for growth. Therefore, most babies lose about one-tenth of the birth weight during the first days of life. In some cases, until the milk supply is properly established, the deficiency in food may have to be in part supplied by giving, after the breast feedings, 1 to 2 ounces of a 5 per cent sugar of milk solution,[10] but this is not usually necessary.

The sugar solution should be omitted after the first few days or as soon as the breast milk is established.

The giving of this sugar solution is not to take the place of boiled water, which should be offered between feedings several times a day throughout infancy.

There is only one reliable indication of whether or not a baby has sufficient food and only one sure way to tell how much he is taking at a meal. The scales will settle both these points. A normal breast-fed child gains from 4 to 8 ounces a week the first six months of life, and after this from 4 to 6 ounces. A simple rule is that a baby doubles its birth weight at the end of the fifth month and trebles it by the end of the first year. The average weekly gain during the first five months should be about 5 ounces; during the remainder of the year, 4 ounces. The weighing of a baby once or twice a week will definitely settle whether or not he is gaining satisfactorily.

No two infants are exactly alike in their development, or in their power to make use of food, but it is a fairly good indication that a well infant is not having the proper kind or the right amount of food if he fails to make any gain for a two-weeks period, or makes unsatisfactory gains over a longer period. To find out the amount of milk a baby gets at a feeding, he should be weighed in the same clothes just before and just after each feeding; the increase in weight gives the ounces of food taken. It must be remembered that the amounts taken at different feedings vary. Therefore, conclusions must not be drawn from weighing the baby before and after a single nursing, but he should be weighed before and after each feeding for one or two days until it can be settled how much he averages at a feeding.

CONDITIONS INFLUENCING THE BREAST MILK.

There are periods when the breast milk may normally not be sufficient. One is at the beginning of nursing, before the supply is established, when the mother first gets up and resumes her household duties; another, near the end of the nursing period, when the supply begins to diminish. In any case the baby should not be weaned suddenly, but the mother's diet and welfare should be watched carefully and artificial food should be given in addition, if necessary.

[10] Two level tablespoonfuls milk sugar to one pint of boiled water.

Part breast and part bottle feeding may be combined at every feeding for many months, the former always being given first.

Illness.

Nursing mothers should be warned against removing the baby from the breast merely because the mother has a slight disorder or sickness. During most cases of brief illness of the mother, the infant may be safely nursed.

A sudden, severe illness of the mother, especially an acute infectious disease with fever, may make it necessary to remove the baby from the breast temporarily. This may mean for only a few feedings, but if the mother's illness is longer and more serious, the baby may be deprived of the breast for a week or two. In any case it is wise to make every effort to keep up the supply of breast milk by emptying the breasts completely at regular intervals, and the baby should return to breast feeding at the first possible moment.

While the mother is acutely ill, if it is necessary to put the baby on artificial feeding it should be done only under a doctor's advice.

Menstruation.

The return of menstruation is often wrongly considered a cause for weaning. Nearly half of all nursing mothers begin to menstruate again as early as the third month after childbirth. The average well baby shows no discomfort during this period, although he may not gain in weight for a few days. In a very few cases the baby may seem irritable, sleep fretfully, and have undigested stools. Usually if the baby is affected at all it is during the few days before menstruation rather than during the period of the flow. The baby should not be removed from the breast during menstruation, although it may be well to give him artificial feeding in addition, if the period of breast feeding is nearly over.

Pregnancy.

If the mother becomes pregnant she should wean the baby. It is too great a strain on the mother to nourish two lives beside her own, and the breast milk is likely to become too poor and scanty to nourish the baby properly.

DIFFICULTIES OF THE NURSING PERIOD.

During the early period of nursing there may be minor digestive disturbances in the baby which may cause mothers some anxiety. It is usually only a matter of adjustment of the baby's digestive tract to a new function and should never be considered an excuse for weaning from the breast.

Stools.

The first passages from a newborn baby's bowels are known as meconium. The excretion is very dark green, thick and sticky, with little or no odor. This soon changes to the normal yellow stool of the healthy infant as the baby begins to feed at his mother's breast.

Ordinarily a breast-fed child should have one to four stools a day, bright orange-yellow in color (though occasionally greenish), soft and mealy, often rather loose in character.

Occasionally a breast-fed baby, who is apparently perfectly well, with a normal temperature, comfortable and thriving, continues to have loose greenish stools containing small curds or some mucus, in spite of the best attention which can be given to the mother. Such stools in an artificially-fed baby would be a reason for changing the food, but in a nursing baby who is well and gaining they may be largely disregarded.

More rarely the breast-fed baby may be constipated, particularly if the mother shows this tendency. In such cases the mother should correct her own condition.[11] Plenty of water should be given to the baby between feedings, and as early as the third month orange juice may be added to the diet.

Underfeeding.

It happens sometimes that a breast-fed baby is underfed. Such an infant shows no gain in weight or more often shows a loss in weight. The baby either nurses for a brief interval and then gives up and falls asleep or shows great distress after an exhausting attempt to obtain food. The stools are scanty, often only brown stains. The child seems weak and may feel flabby and look pale, but he usually cries very little and sleeps a great deal.

The fact that a baby does not gain in weight or actually loses in weight immediately suggests that he is not getting enough food. Weighing the baby for several days before and after each feeding will prove this. If the baby is not getting enough food, artificial food must be temporarily supplied as a part of the diet.

It may be that the mother has not enough milk or it may be that the baby is not vigorous enough to nurse properly or has a deformed mouth.

If the trouble is due to real lack of milk supply more attention should be paid to the hygiene of the mother. She must have plenty of rest and sleep and she must take the proper amount of food and liquid. Under any circumstances it is most important that the breasts be emptied thoroughly at regular intervals in order to stimulate the production. Weak babies or those with deformed mouths

[11] See Breast Feeding, p. 49; also U. S. Children's Bureau Dodger No. 4, Washington, 1921.

should be fed the milk which has been expressed.[12] Persistent efforts to increase the amount of milk will usually be successful.

If after such methods the mother's milk still is insufficient, mixed feeding—part breast feeding and part bottle feeding—may be given for weeks or even months. One bottle feeding a day should be given in place of the breast, or the bottle should be given after each breast feeding to make up the necessary amount.

By giving part breast milk and part cow's milk a well baby will usually have no difficulty in digesting the cow's milk. Even a little breast milk may prevent digestive disorders. In case the baby is disturbed or sick the bottle can be stopped for a few days and only the breast given and boiled water may be given in place of the cow's milk.

Overfeeding.

Overfeeding is rare in the breast-fed baby. When it occurs it usually means that the nursing periods are too frequent or that the quantity taken at one time is too large, or that the milk is too rich in fat. Under such circumstances the baby usually spits up after nursing and is fussy.

To remedy this, the time at the breast should be decreased and the interval between feedings increased to four hours. A few spoonfuls of warm water just before nursing will dilute the milk.

SUMMARY OF FEEDING FOR A WELL BREAST-FED BABY.

FEEDING THE FIRST SIX MONTHS.

	Three-hour feeding interval.	Four-hour feeding interval.
Early morning nursing	6.00 a. m.	6.00 a. m.
Fruit juice (after 3 months)—1 teaspoonful to 1 ounce of the juice diluted in 1 to 3 ounces of boiled water	8.30 a. m.	9.30 a. m.
Mid-morning nursing	9.00 a. m.	10.00 a. m.
Mid-day nursing	12.00 m.	2.00 p. m.
Water boiled and cooled, offer 1 to 3 ounces	.....	.....
Mid-afternoon nursing	3.00 p. m.	None.
Water boiled and cooled, offer 1 to 3 ounces	.....	.....
Bed-time nursing	6.00 p. m.	6.00 p. m.
Night nursing	[a]10.00 p. m.	[a]10.00 p. m.

[a] Or later. During the early weeks of life a second night nursing between 10 p. m. and 6 a. m. may be needed, but as soon as possible the baby should sleep unbrokenly after one night feeding.

[12] See section on expression of breast milk, p. 61.

FEEDING 6 MONTHS TO 1 YEAR.

	Four-hour interval.
Sixth month:	
Nursing	6.00 a. m.
Fruit juice, 1 to 2 ounces, diluted with 1 to 4 ounces of boiled water	9.30 a. m.
Well-cooked cereal, 1 to 2 rounded tablespoonfuls, followed by nursing	10.00 a. m.
Nursing	2.00 p. m.
Water, 1 to 6 ounces, boiled and cooled	5.00 p. m.
Half slice zwieback or crisp toast, followed by the nursing	6.00 p. m.
Nursing	10.00 p. m.
Seventh month:	
By the seventh month, strained vegetable soup, 1 to 6 ounces, may be given, followed by nursing	2.00 p. m.
Ninth month:	
By the ninth month, 1 to 3 teaspoonfuls of vegetable pulp may be added to the strained soup	2.00 p. m.

NOTE.—One bottle feeding may be substituted in place of one nursing.

Usually after nine months, and before if necessary, weaning should be begun. (See below.) Every child should be entirely weaned before he is a year old.

For strength and amount of milk mixture used in feedings to be given during these months see "Summary of Artificial Feeding to 1 Year," page 74.

WEANING.

The first months in the life and development of a child are the most critical period. Weaning at this time is a serious matter. A well baby after he is 6 months old can, as a rule, be successfully weaned when necessary, if it is properly done. However, at least part breast feeding should be continued throughout the next three months or even longer, if possible, depending upon the infant's health, the season, and the other circumstances.

Sometimes a baby can not take cow's milk, but this is very unusual. In such a case milk from a goat or some other domestic animal may be tried.

As a rule the trouble in weaning is not because the infant can not digest cow's milk, but because the change is made too suddenly, or the food given at first is not properly adapted to the infant. (For formula that may be given to the baby according to age, see p. 74.)

How to wean.

If the baby is already having some artificial food, weaning need not take more than two weeks. One entire bottle feeding may be given in place of a breast feeding. After several days, if the baby is not upset, another bottle may be given. A part bottle feeding may have to be given at the end of the other breast feedings. By gradu-

ally changing in this way from breast feeding to bottle feeding, weaning can usually be completed in two weeks without upsetting the baby. It is very seldom necessary to wean in a shorter time than this and there is every reason to wean gradually so as to prevent any disturbance.

Sometimes a perfectly normal baby over 6 months of age will refuse to use a bottle when the mother tries to wean him. As a baby less than 1 year of age seldom gets enough food when fed from a cup or spoon the mother should keep on trying to make the infant draw from the bottle. Persistent effort will usually be successful. In case the child refuses both the bottle and the cup and weaning has to be carried out, food should be offered only at regular four-hour intervals. The child will finally yield and take artificial food. If he has been accustomed to taking water from a bottle, there is much less difficulty in weaning.

Weaning in hot weather even for a well baby must be done gradually and undertaken with great care.[13]

WET NURSES.

In some cases if the mother can not nurse the baby it is necessary to engage the services of a wet nurse. Some new-born babies, especially those prematurely born, and some very delicate babies, or those suffering from chronic digestive disturbance, can not be made to thrive on artificial food. For such babies it is wise to provide a wet nurse. In large cities there are agencies where wet nurses can be obtained. In small towns or in the country wet nurses can be secured by advertising, or by inquiry at a maternity hospital in some near-by city. Frequently breast milk may be obtained by expression from another mother and not infrequently a friend will nurse another baby than her own (see p. 52, Technique of nursing).

When a wet nurse is secured it is not necessary that her baby should be the same age as the baby to be nursed. It is best to engage a nurse whose baby is old enough and whose condition is such as to indicate that she can produce an abundant milk supply. Also, the wet nurse should not be too near the weaning period.

Every wet nurse should nurse her own baby. Her peace of mind will insure better breast milk. Also, if the baby to be wet-nursed is small and weak it may be an advantage to have the wet nurse's breasts emptied afterwards by a more vigorous child. Professional wet nurses in hospitals often furnish enough milk for several babies at a time, so there need be no fear that a wet nurse can not supply milk for two if she has good breasts, if her life is properly regulated and her diet ample.

[13] See section on hot weather disturbances, p. 85.

The general appearance of the wet nurse and her child should be considered before she is engaged. The healthy appearance of her child is a guaranty of her ability to nurse. Also it is absolutely necessary that the nurse herself be given a complete physical examination by a physician. She must be perfectly healthy and must not have any disease which she could transmit to her nursling. Acute tuberculosis, gonorrhea, and syphilis are the diseases most to be looked for. The complete physical examination which should be given her by a physician before she is engaged should include the blood test for syphilis and examination for gonorrhea, whether or not she shows any symptoms of these diseases.

Often much tact is necessary in managing a wet nurse. It is a mistake, however, to pamper her with luxuries. She should do the amount of work she is used to doing in her own home, and she should be given a simple and nutritious diet and should have the responsibility and care of her own baby.

THE SMALL OR DELICATE INFANT.

The premature baby.

The methods of feeding and care of the infant born before full term are applicable also to a small delicate baby.

The normal body temperature must be maintained. Infants may die from exposure because of lack of proper care immediately after birth. Any infant weighing 5 pounds or less at birth should be immediately protected from excessive loss of heat, because the heat-producing power at this time is so feeble. Such a baby should be handled as little as possible and therefore oiled, not washed, and rolled in flannel or cotton temporarily so that the entire body except the face is covered. For permanent use a simple cheesecloth jacket padded with cotton should be made, and, to avoid handling, no other clothes are necessary. A pad of cheesecloth and cotton may be used instead of a diaper. The baby should then be wrapped in a knitted shawl or small wool blanket and placed in a large flat-bottomed basket or box, which has been padded and lined with a blanket, and partially covered with another blanket. Extra heat should be carefully maintained by means of hot-water bags or bottles placed around the baby. Great care should be used not to burn the baby.

The room in which the infant is kept should be well ventilated, but a constant temperature of 75° to 80° F. should be maintained. The temperature of the crib should be between 80° and 90° F.

Premature babies are particularly prone to infection, especially colds, which may prove fatal. All visitors must be excluded from the room.

The infant should be fed while in the basket and removed only every other day for an oil rub and clean clothing. His position in the crib should be changed frequently.

The premature infant is usually far too weak to nurse or to draw from a bottle, so that the milk has to be expressed and fed slowly by means of a medicine dropper or stomach tube. If a medicine dropper is used the end should be protected by slipping over it a small piece of rubber tubing. As it may be some weeks before the baby is able to nurse even small amounts, it will be necessary for the mother to empty her breasts at regular intervals. This can be done by expression. The premature infant should be fed breast milk beginning with a teaspoonful every two hours. Gradually increase the quantity given at each feeding as rapidly as possible until the baby is getting in 24 hours 3 ounces for each pound of body weight. The intervals between feeding should then be lengthened to three hours. Some premature infants do better from the beginning on three- or four-hour feeding intervals. Under such circumstances, in order that they may obtain sufficient food, it is sometimes necessary that the feeding be done by means of a catheter improvised as a stomach tube and used by a trained person.

It is particularly important that premature infants be given water between feedings. The total quantity of milk and water given in 24 hours should not at any time be less than 3 ounces per pound of body weight, and it is therefore necessary to give a larger quantity of water at first when the baby is getting a small amount of milk.

The stronger and more vigorous infants may be put to the breast like normal infants. Care should be taken to be sure that they are not fatigued by the process.

The feeding of a premature or delicate infant is a most serious problem. Until the mother's milk is established, every effort should be made to secure a few ounces of milk from some other woman nursing her own child or to obtain a regular wet nurse. The wet nurse's baby should accompany her and should be used to stimulate the breasts of the premature baby's mother. The age of the wet nurse's baby is not important, for the milk can usually be adapted to the digestive powers of the baby in question.

EXPRESSION OF BREAST MILK.

Scrub the hands and nails with soap, warm water, and a nail brush for at least one full minute. Wash the nipple with fresh absorbent cotton and boiled water or a freshly made boric solution. Dry the hands thoroughly on a clean towel and keep them dry. Have a sterilized graduate glass tumbler or large-mouth bottle to receive the milk.

1. Grasp the breast gently but firmly between the thumb placed in front and the remainder of the fingers on the under surface of the breast. The thumb in front and the first finger beneath should rest just outside of the pigmented area of the breast.

2. With the thumb a downward pressing motion is made on the front against the fingers on the back of the breast, and the thumb in front and fingers behind are carried downward to the base of the nipple.

3. This second act should end with a slight forward pull with gentle pressure at the back of the nipple which causes the milk to flow out.

The combination of these three movements may be described as "Back-down-out."

It is not necessary to touch the nipple.

This act can be repeated 30 to 60 times a minute after some practice.

Both breasts may be emptied if necessary or they may be used alternately.

The milk should be covered at once by a sterile cloth held in place by a rubber band and kept on ice until used.

ARTIFICIAL FEEDING.

There is no perfect substitute for mother's milk; therefore, every effort should be made to encourage the mother to nurse her baby before attempting artificial feeding. If artificial feeding must be used the problem is to adapt the milk of cows or other animals so that it will be serviceable for infant feeding.

SUBSTITUTES FOR MOTHER'S MILK.

Some form of milk is absolutely necessary for the normal growth and development of all children under 2 years of age.

Babies have a marvelous ability to use a wide range of food substances. This is why many strange foods and strange methods of feeding are apparently successful for a short time. Almost every article of foodstuff has been fed to some baby, and perhaps, in a single case, successfully. This does not mean that the food would be safe for other babies.

The milk of domestic animals furnishes food which is more nearly adequate for a baby than any other foodstuff.

Cow's milk is the milk commonly used in America. Goat's milk is used in many countries and in some sections of the United States its use is being extended. There is a general idea that it is cheaper

EXPRESSION OF BREAST MILK.

to feed a goat than a cow, but for the amount of milk obtained that is probably not true. One advantage about goats is that they very seldom have tuberculosis. Goat's milk is similar in composition to cow's milk, and the average baby can take goat's milk as successfully as cow's milk. The amount given and the dilution should be the same as of cow's milk.

Ass's milk is recommended by some European physicians because it contains very little fat and is more easily digested by young infants on this account.

Different kinds of cow's milk.[14]

There are the following kinds of milk which are suitable and available for infant feeding: Fresh raw milk, "pasteurized" milk, scalded milk, boiled milk, and milk which has been condensed, evaporated, or dried.

Raw milk.—Milk that can safely be used raw must be fresh, clean, and free from disease germs. It must be produced by healthy cows, handled by healthy milkers under the cleanest and most sanitary conditions. The milk must be kept chilled from the time of milking until it reaches the consumer. Milk of this description is known in certain cities as Grade A raw milk. When milk is guaranteed to meet certain requirements of analysis and inspection, it is called "certified"[15] milk. Certified milk because of the care in its production costs more than other milk, and it constitutes a very small proportion of milk sold.

Unless milk is produced from tuberculin-tested cows on the premises with the utmost cleanliness and care, or unless certified milk can be obtained, it is safer not to use raw milk for infant feeding.

Pasteurized milk.—To pasteurize milk, it is heated to a temperature of 145° F. and kept at that temperature for 30 minutes and immediately chilled and kept below 50° F. until used. This process destroys disease germs. Pasteurized milk should be used within 24 hours.

Scalded milk.—To scald milk, heat it in an open vessel until it bubbles around the edges and steams in the center. This will mean a temperature of from 167° to 185° F. and it will destroy all ordinary disease germs. Scalding is not boiling.

Boiled milk.—To boil milk is to heat it to the boiling point (212° F.), and it should be allowed to boil for three minutes.

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[14] Mendenhall, Dorothy Reed, M. D.: Milk, the Indispensable Food for Children, p. 13. U. S. Children's Bureau Publication No. 35. Care of Children Series, No. 4. Washington, 1918.

[15] "Certified" milk is a name adopted by the American Association of Medical Milk Commissions and is legally protected in a number of States.

For infant feeding, all milk should be fresh and clean. Unclean milk is not fit for babies, even if pasteurized or scalded. Commercial pasteurization, even though properly done, does not make milk safe for infant feeding unless the milk is properly handled after pasteurization. If there is any question as to the method of pasteurizing and proper handling, such milk should be scalded before feeding it to an infant. Unscrupulous dealers have been known to advertise their milk as "pasteurized" or even "certified" when that was not true. Bottled certified milk has "certified" blown in the bottle or stamped on the cap.

Condensed and evaporated milk.—There are two kinds of canned milk—sweetened (condensed) and unsweetened (evaporated). Sweetened condensed milk is not suitable for infants because of the large amount of sugar and the small amount of milk which it contains. If the baby is given enough of this milk for his growth and development he will have too much sugar. If this milk is diluted so that the amount of sugar is correct, the baby will not get enough milk. Most infants fed only on condensed milk show nutritional disturbances sooner or later. Evaporated milk may be used in emergencies for a short time only.

Dry milk or milk powder.—Dry milk has been used successfully in infant feeding abroad during and since the war and also in this country. There are several kinds of milk powder on the market, made from whole, skim, or half-skim milk, which can be adapted to artificial feeding.

It is important that dried milk be made from clean cow's milk. This is a matter over which the individual mother has no control, but after a can has been opened, she should make sure that it is tightly closed and kept where it can not become contaminated.

The milk powder should be made liquid by adding enough water (see directions on the package) to have the value of whole milk. It may then be used as if it were fresh milk and diluted according to the baby's age. It should, however, be used only during such time as fresh milk can not be obtained.

In using canned or dried milk it is very important to give the baby also some vegetable or fresh fruit juice.

Proprietary infant foods.

There are two kinds of proprietary or patent infant foods. The first kind contains dry milk. The second kind of patent food, commonly called "milk modifiers," contains no milk and must be added to fresh milk. These latter foods consist largely of sugar and starch. Mothers should understand clearly that this second kind of preparation is an incomplete food unless it is added to milk. Mothers have sometimes starved their babies because they thought these patent

foods needed only to have water added to them. All proprietary foods are much more expensive than when the ingredients are purchased separately.

Most patent foods contain a great deal of sugar and for this reason a baby may like them, but this sugar is likely to cause digestive disturbances. Babies fed on patent foods only are sometimes fat, but even when overweight they usually show symptoms of rickets and reduced power to resist disease. Scurvy frequently follows the exclusive use of patent foods.

HOW CLEAN COW'S MILK IS PRODUCED.

Since it is so important that the infant have milk which is clean, free from disease germs, and of the proper composition, the conditions essential to producing such milk are given in detail.

The cow.

The first essential is that the cows shall be healthy. Milk from a sick or diseased cow is not nourishing and it may transmit disease. Tuberculosis is the disease most to be feared. The tuberculin test should be applied to cows at least once a year or oftener if tuberculosis has been found in the herd. A sick animal should be immediately isolated and its milk discarded.

To be healthy, animals must be well fed and well cared for in decent, clean surroundings. Well-built, well-aired stables are necessary.

The udder and teats of the cow should be washed with clean water and wiped dry before milking. This prevents dust and hair from dropping into the pail during the milking.

The milker.

Disease may be carried from an unhealthy milker as well as from an unhealthy cow. Tuberculosis and epidemic diseases have been found to come from diseased milkers.

The hands of the milkers should be washed clean and dried carefully before milking. Milking with wet hands is almost certain to carry impurities into the milk. A clean wash suit or jacket should be worn while milking. The milker should be very careful not to raise dust or permit any substance to fall into the pail.

Milking utensils.

A covered pail with an opening not more than 5 inches in diameter should be used for milking. This pail, strainers, milk cans, and all other utensils should be washed clean and sterilized before using.

The water supply used in washing the utensils, the udder of the cow, and the hands of the milker must be clean and uncontaminated.

Many serious outbreaks of disease have been caused by a bad water supply on the farm.

Refrigeration.

After milking, the milk must be cooled quickly by standing in the cans in cold water or ice water. Milk should be kept at a temperature below 50° F.

CHOICE OF MILK.

Parents should know the character of the milk which is to be given to children. The important factors are the health of the animals from which the milk is obtained, the cleanliness of production, and the care in distribution.

A dairy herd that is tuberculin tested and properly inspected should be chosen. In case of doubt the milk should be pasteurized or scalded in the home.

In cities having boards of health information can be obtained at that office as to the different dairies. In some cities monthly tests are made of the milk in all dairies and the result is published in the newspapers. A personal visit to the dairy is most instructive.

As a rule, it is best to obtain milk from a herd. There is less danger of getting milk from a diseased cow and the milk varies less in composition. Milk averaging 4 per cent fat is best for infant feeding.

In cities none but bottled milk should be bought. Bulk or "dipped" milk is absolutely unsafe, also milk bottled by milkmen in their wagons or bottled from the can in a store. Too much care can not be used.

Where it is not possible to obtain fresh milk, some form of canned or dried milk is the next best substitute.

CARE OF MILK IN THE HOME.

Milk must be given proper care after it is delivered. Milk frequently becomes spoiled by being allowed to stand in the sun on the doorstep or in a warm kitchen. It should be placed immediately in the ice box, where the temperature should be below 50° F. If ice is not available milk can be kept at this temperature by using an iceless refrigerator[16] or standing the bottle in running spring water.

[16] Directions for making iceless refrigerator. (Reprinted from Farmers' Bulletin No. 927, U. S. Department of Agriculture, through the courtesy of that department.) A wooden frame is made with dimensions 42 by 16 by 14 inches and covered with screen wire, preferably the rustless type, which costs little more than the ordinary kind. The door is made to fit closely and is mounted on brass hinges, and can be fastened with a wooden latch. The bottom is fitted solid, but the top should be covered with screen wire. Adjustable shelves can be made of solid wood or strips, or sheets of galvanized metal. Shelves made of poultry netting are probably more desirable. These shelves rest on side

A spring house or well may be used to refrigerate milk if the water is cold enough. The covered pail should be placed in the well so that the water comes up nearly to the cover. In this way the contents of the pail may be kept as cold as the water outside the pail. In cool climates bottles may be placed in a pan of water in an open window on the cool side of the house.

It is best to keep milk until used in the bottle in which it comes. If this can not be done the milk should be transferred to a clean, sterilized Mason jar and kept tightly covered. The cover or cap of the milk bottle should be wiped off so that no dust may fall into the milk when the cap is removed, and before pouring out milk the edge of the bottle or jar should be wiped off with a clean, dampened cloth. All bottles, utensils, and the ice box itself must be kept scrupulously clean. Milk containers must not be used for any other contents.

A separate ice box for the baby's milk is desirable, if possible. A homemade refrigerator can be made with very little expense. A small tin ice box may be bought at any department store or large hardware store and a cover or "cozy" made of felt or quilted cotton. By using a well-padded cover the ice will last much longer and the inside temperature will remain constant.

If the family ice box is to be used it is best to keep the baby's bottles in a covered pail, which should be large enough to hold all the bottles for the 24 hours. The pail should be small enough to fit between the shelves of the ice box or to go into the ice compartment. A thermometer should be kept in the pail with the baby's bottles, and it should register below 50° F. at all times.

PREPARATION FOR ARTIFICIAL FEEDING.

Equipment.

If possible, a mother should procure the proper utensils for preparing artificial food, and these utensils should not be used for anything else. It may cost a few dollars extra, but the proper equip-

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braces placed at desired intervals. A bread-baking pan, 14 by 16 inches, is placed on the top, and the frame rests in a 17 by 18 inch pan. All the woodwork, the shelves, and the pan should receive two coats of white paint and one or two of white enamel. The screen wire also should receive one or two coats of enamel, as this will prevent it from rusting. A cover of canton flannel, burlap, or duck is made to fit the frame. Put the smooth side out if canton flannel is used. It will require about 3 yards of material. This cover is buttoned around the frame and down the side on which the door is not hinged, using buggy hooks and eyes or large-headed tacks and eyelets worked in the material. On the front side arrange the hooks on the top of the latch side of the door, allowing a wide hem of the material to overlap the place where the door closes. The door can then be opened without unbuttoning the cover. Four double strips, which taper to 8 or 10 inches in width, are sewed to the upper part of the cover. These strips form wicks that dip into the upper pan. If a larger capacity is desired, the height of the refrigerator can be increased. (Farmers' Bulletin No. 929, U. S. Department of Agriculture, gives photographs of a finished iceless refrigerator; also explanation of its operation. Sent free upon written request to Division of Publications, U. S. Department of Agriculture.)

ment used only for the baby's food will save much time and trouble every day. The following is a list of needed equipment:

1. Nursing bottles (12) holding 8 ounces. (It is cheaper to buy them by the dozen, but there should be at least one more than the number of feedings in 24 hours.)
2. Nipples (12). Fresh nipple for each feeding.
3. Nonabsorbent cotton, or rubber corks.
4. Bottle brush.
5. Bottle rack or container. (May be made at home from a small pail by fitting wires to hold the bottles apart.)
6. Crockery or enamel 2-quart pitcher for mixing.
7. Glass graduate (measuring glass) holding at least 8 ounces, graduated in one-half ounces.
8. Measuring spoons (table, tea, and half-tea sizes).
9. Mixing spoons (table size).
10. Fork for removing cap from milk bottle.
11. Double boiler, holding 2 quarts.
12. Saucepan, for boiling water or scalding milk.
13. Flat-bottomed enamel-ware kettle or pail with a lid, 18 inches in diameter, holding 1 gallon and fitted with false bottom for sterilizing utensils.
14. Enamel-ware funnel.
15. Knife for leveling.
16. Small glass jars with covers for nipples (one for clean and one for used nipples).

Preparation of the bottle feedings.

The hands of the mother, the utensils, and everything that touches or comes near the food should be perfectly clean. Clean milk can be spoiled by dirty handling.

Bottles.—Selection of bottles is important. It is most important that every part of the inside of a bottle be easily reached by the bottle brush and that there are no corners which can not be cleaned. The neck of the bottle should slope gradually into the body of the bottle, and the bottom of the bottle should also slope into the sides without a sharp corner. New bottles should be washed thoroughly in hot suds, rinsed with cold water, and boiled before using. All bottles should always be boiled for five minutes before they are used. After a bottle is emptied it should be well rinsed at once in cold water, and then filled with cold water, and put in a clean place away from flies and dust until all the bottles for a day's feeding can be conveniently washed and sterilized.

Nipples.—The most important thing about choosing nipples is to select the kind which can easily be turned inside out to be cleaned. A nipple that can not be cleaned in this way is unsafe to use. It is best to buy nipples without holes, and to make one hole near the top

with a fine, hot sewing needle. If nipples are bought with holes it is often necessary to enlarge the holes with a heated needle. The holes should be large enough to allow the milk to drop rapidly, but not to flow in a steady stream, when the bottle is turned upside down. New nipples should be rubbed inside and out with the hand or with a stiff brush until the white coating is entirely removed, then thoroughly washed in hot suds, rinsed, covered with cold water, and boiled before using. All nipples should always be boiled for five minutes before they are used. Keeping nipples in boiled water or in antiseptic solutions is not wise, because bacteria may grow in such fluids. Clean sterilized nipples should be kept in a sterile covered glass jar. After a feeding the nipple should be turned and rinsed inside and out in cold water, and put away in a covered jar until sterilized for the following day. It is important to use a fresh nipple for each feeding.

Sterilizing utensils.—Bottles, nipples, mixing pitcher, measuring spoons, graduate, and other utensils that are to be used in mixing the baby's food should be washed in hot suds, rinsed in clean, hot water, and boiled for five minutes before using.

Mixing the food.—Take the bottle of milk from the ice box and wipe the top carefully with a clean towel dipped in boiling water before the cap is removed. Have at hand the boiled water, cereal water, or gruel already prepared and cooled (see p. 99). Wash the hands carefully. Remove from the stove the container in which the utensils were boiled. Without touching the tops or insides take out all the utensils and place them right side up on a clean table previously covered with a clean towel. Place the nipples in a sterile glass and cover. Measure the sugar in a measuring spoon and place it in the glass graduate. Measure the boiled water or cereal water in the same glass graduate and dissolve the sugar in the water. Empty the contents of the graduate into the mixing pitcher. Measure the milk to be used in the graduate and add this to the water and sugar in the pitcher and stir with the large mixing spoon. Fill the bottles with the correct amount for each feeding, measuring it only in the glass graduate, not by the marks on the nursing bottles because they are less accurate. Stopper the bottles with cotton or corks, or cover them with squares of wax paper held down by rubber bands.

Cool the bottles and contents quickly by standing them in running water. Then place the bottles in the bottle rack and keep them cold (below 50° F.) until used.

WHAT MILK MIXTURE TO FEED THE BABY.

Every baby should be under the supervision of a physician, and at no time is this more necessary than when artificial feeding is

begun. Cow's milk should be the principal food during the first two years of life. Whole cow's milk, properly diluted with boiled water with the addition of sugar, is usually suited to the average baby under 1 year of age.

No single method of artificial feeding can possibly meet the needs of all infants. The methods given in the following are simple, practical, and safe. These methods are adaptable to the needs of the majority of well babies.

Milk.

During the first three weeks of life the baby usually requires not more than 1 ounce per pound of body weight.

After the first two or three weeks of the infant's life and as long as milk is the chief food, babies usually require not less than 1½ ounces of milk to a pound of body weight.

[To illustrate: A well infant 5 months old, weighing 14 pounds, should take in 24 hours 1½ ounces of milk for every pound he weighs (1½ times 14), or 21 ounces of milk. If the baby has never taken cow's milk, it is better to start with a smaller quantity of milk—for instance, 1 ounce to a pound of body weight, or 14 ounces of milk—and increase this as rapidly as possible to the full amount required, namely, 1½ ounces to a pound of body weight.]

Whether breast fed or bottle fed, every baby should learn to take whole cow's milk by the end of the first year, preferably drinking from a cup at this age. It is rarely necessary to give more than 1 quart of cow's milk in 24 hours. When this is insufficient nourishment other foods should be added to the diet.

Water.

At first cold boiled water should be used for diluting the milk, and increasing the total amount of fluid necessary in 24 hours. By the third month or any time thereafter, a cereal water[17] may be used to dilute the milk instead of plain water. The amount of water to be added to the milk is calculated by multiplying the number of feedings in 24 hours by the amount of each feeding. This gives the total amount of food mixture. Subtract from this the total amount of milk to be given (1½ ounces for each pound of weight) and the result will be the amount of water to be used.

[To illustrate: Baby aged 4 months, weighing 12 pounds, and taking 5 feedings of 6 ounces each—

$5 \times 6 = 30$ ounces of food mixture.
$12 \times 1\frac{1}{2} = 18$ ounces of milk to be given.
12 ounces of water to be added.]

[17] See p. 99.

The amount of water is diminished as the amount of milk is increased, unless it is necessary to increase the total amount of fluid given. (See table of feeding intervals and amounts, p. 74.)

Cool boiled water should be offered to every child several times a day between feedings. The amount of water he takes depends largely on the forethought of his mother. A child at 1 year should take at least 8 ounces a day, and more in warm weather.

Sugar.

Three kinds of sugar are commonly used in infant feeding—cane sugar (ordinary granulated sugar), milk sugar, and malt sugar. For most babies cane sugar is perfectly satisfactory.

One level tablespoonful (½ ounce by weight) of granulated sugar should be added to the total milk mixture for each 5 pounds that the baby weighs. Not more than 3 level tablespoonfuls of granulated sugar should ever be added to the total quantity of milk mixture for 24 hours at any age.

One and one-half level tablespoonfuls of milk sugar equals 1 tablespoonful of cane sugar (½ ounce by weight).

Sugar is gradually increased in amount with the increase in the strength and quantity of the formula. By the eighth month the child may be given 3 level tablespoonfuls of cane sugar or 4½ level tablespoonfuls of milk sugar to the day's milk mixture, but that is the maximum amount of sugar ever allowed. From this age on the sugar is gradually decreased so that by 1 year of age the child takes whole milk unsweetened.

Alkalies.

Lime water or other alkalies do not need to be added to the milk mixtures of healthy babies.

ADDITIONS TO DIET UNDER ONE YEAR.

Starches.

To increase the food value of the baby's diet, and to promote the clotting of the milk into fine curd, starch in the form of a thin flour or cereal water or a thick gruel, according to the age of the baby, is at times used to dilute the milk in place of all or part of the boiled water.

By the third month cereal water can be added to the milk mixture in place of water. Thick gruel [18] in small quantities (1 tablespoonful) can be given by the sixth month. This quantity can be increased to 2 tablespoonfuls twice daily and fed from a saucer at regular feeding time by pouring some of the bottle milk over it; the meal being finished by taking the remainder of the bottle.

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[18] See p. 100.

By the seventh month bread cut thin and dried in the oven or homemade zwieback may be given once a day to teach the baby to chew and manage crumbs. Home goods are always safer for the baby than store purchases or bakery goods, for the exact amount and kind of the ingredients are known and there is less danger of their being insufficiently baked or containing too much sugar or shortening.

Fruit juices.

Orange juice may be started by the third month. If oranges are not available, canned tomato juice may be substituted. This is not economical for home use because of the necessity of opening fresh cans of tomatoes daily. The amount at first should not be more than 1 teaspoonful. This should be gradually increased to 1 tablespoonful by the second half of the year, and to 1 or 2 ounces by the end of the first year. The quantity of juice should always be diluted with an equal amount of water and should be given one-half hour before feeding, preferably between morning feedings. By 12 months of age the juice of fresh, ripe fruit may be given, such as pineapple, peaches, pears, and apricots; and also apple sauce.

Vegetables.

Strained vegetable soup may be added to the diet any time after the sixth month. It can be added at the time of feeding, replacing 1 ounce of the milk mixture or placed in the milk mixture.

By the ninth month well bottle-fed babies may be given 1 or 2 teaspoonfuls of vegetable pulp, made by boiling vegetables very soft and putting them through a fine wire sieve, or 5 to 6 ounces of vegetable soup may be given and the quantity gradually increased in amount, so that by the end of the first year the baby is receiving 8 ounces of vegetable soup.

Beef juice.

Beef juice may be given after the tenth month. Begin with 1 teaspoonful and increase to 1 tablespoonful.

FEEDING RULES.

Feeding intervals.

During the first and second month, 3-hour intervals—6 or 7 feedings in 24 hours (6 a. m., 9 a. m., 12 m., 3 p. m., 6 p. m., 10 p. m., and 2 a. m., if needed), or 5 or 6 feedings on a 4-hour schedule (6 and 10 a. m.; 2, 6, and 10 p. m.; and 2 a. m., if necessary).

During third month, 3-hour intervals—6 feedings in 24 hours (6 a. m., 9 a. m., 12 m., 3 p. m., 6 p. m., and 10 p. m.), or 5 feedings on a 4-hour schedule (6 and 10 a. m.; 2, 6, and 10 p. m.).

During and after fourth and fifth months, 4-hour intervals—5 feedings in 24 hours (6 a. m., 10 a. m., 2 p. m., 6 p. m., 10 p. m.).

Amounts at each feeding.

On 3-hour intervals the quantity should be 1 ounce more than baby *is months old.* Example: A 3-months-old baby takes 4 ounces per feeding if fed every 3 hours.

On 4-hour intervals, the quantity is *2 ounces more than the baby is months old.* Example: A 6-months-old baby takes 8 ounces per feeding on 4-hour schedule.

The increases per feeding are made gradually until the feedings reach 8 ounces.

Giving the bottle.

At feeding time the bottle of modified milk is removed from the ice box, the cotton or rubber stopper removed, and a clean, sterile nipple from the sterile jar put on it. The hands that put on the nipples should be freshly washed and clean, and only the rim of the nipple should be touched in putting it on. The bottle is then heated by standing it in warm water in a vessel, such as a pint cup, for which a false bottom has been made by dropping in a tin jelly top in which holes have been punched. Bottle warmers may be purchased in any hardware store but are no better than the homemade variety. The water around the bottle should be warm to start with and should be heated rapidly. Great care must be taken not to have the contents of the bottle overheated or cooked. Usually the contents of the bottle is sufficiently warm (100° F.) before the water in the container has boiled. The warmth of the milk in the bottle may be tested by letting a few drops trickle from the nipple on the mother's wrist, where it should feel pleasantly warm but not hot. The nipple should not be touched or come in contact with anything until it reaches the baby's mouth.

A baby should be held while taking the bottle, or lie on his side in the crib while the bottle is held in place for him. A semiupright position is best if there is a disturbance caused by gas. Twenty minutes is the longest time and 10 minutes the shortest time that should be allowed for taking a bottle.

After nursing or feeding, the infant should be raised carefully to the mother's shoulder and patted several times on the back with the flat of the hand to bring up the gas, or air swallowed with the food. Some babies need to be taken up during nursing or feeding for this purpose.

GROWTH.

The chief difference between a well breast-fed and a well bottle-fed baby, both of whom are receiving enough food, is that the gain of the former is apt to be greater, especially during the first six months of life.

After artificial food has been adjusted to the baby's needs, an average weekly gain of 4 or 5 ounces is all that need be expected.

An average bottle-fed baby may be expected to nearly double its birth weight by the sixth month and treble its birth weight by the end of the first year.

DIFFICULTIES OF THE ARTIFICIALLY FED BABY.

Stools.

The stools of an artificially fed baby are quite different from those of a breast-fed baby. They are almost always fewer in number, frequently only one in 24 hours. The movements are much firmer, often formed, and with slight odor. The color differs, according to the food, from lemon yellow, if cow's milk is the sole food, to dark or light brown, if malt products or starchy gruels are used. A well baby's stool should be smooth and somewhat pasty in character, showing that the food is well digested. Loose, green, frequent stools, or hard, greasy, marble-like movements are symptoms of disturbance and indicate the necessity of some change in diet.

Underfeeding.

Underfeeding may be caused either by not feeding enough of the right food or by feeding the wrong kind of food. Underfed infants usually sleep for shorter periods and fret and cry before the regular feeding period. If the baby fails to make regular gains in weight, the food either needs to be increased in quantity or properly modified to suit the baby's needs. No two infants have exactly the same ability to utilize food.

Overfeeding.

Overfeeding is one of the most common causes of digestive disturbances in artificially fed infants. Babies cry and fret, frequently not because they are hungry but because they are uncomfortable from being given more food than they can digest. Stationary weight is not uncommon when the food is pushed beyond the needs and the digestive capacity of the child.

The overfed baby may take all that is given him and cry for more, or he may leave some of his bottle. Overfeeding is frequently due to too rapid increase in quantity and strength, or to too frequent feedings. Regurgitation (spitting up) or vomiting may be a symptom of overfeeding.

SUMMARY OF ARTIFICIAL FEEDING TO 1 YEAR.[19]

Birth:		
Average weight, 7 pounds.	Boiled water.	1 to 2 ounces every 4 hours.
1st week:		
Average weight, 7 pounds or less.	Whole milk.	7 ounces.
	Boiled water.	14 ounces.
	Cane sugar.	1 level tablespoonful.

Offer 3 ounces every 3 hours. Total 7 feedings in 24 hours.

[19] Based on three-hourly schedule up to 4 months.

2 weeks:

Average weight,	Whole milk.	8 ounces.
7 pounds.	Boiled water.	13 ounces.
	Cane sugar.	2 level tablespoonfuls.

Offer 3 ounces every 3 hours. Total 7 feedings in 24 hours.

3 weeks:

Average weight,	Whole milk.	9 ounces.
7½ pounds.	Boiled water.	12 ounces.
	Cane sugar.	2 level tablespoonfuls.

Give 3 ounces every 3 hours. Total 7 feedings in 24 hours.

1 month.

Average weight,	Whole milk.	11 ounces.
8 pounds.	Boiled water.	10 ounces.
	Cane sugar.	2 level tablespoonfuls.

Give 3 ounces every 3 hours. Total 7 feedings in 24 hours.

3 months:

Average weight,	Whole milk.	17 ounces.
11 pounds.	Boiled or cereal water.[20]	11 ounces.
	Cane sugar.	2 level tablespoonfuls.

Give 4 ounces every 3 hours. Total 7 feedings, or if 2 a. m. feeding is eliminated, give 4½ ounces for 6 feedings.

Orange juice (see p. 72).

4 months:

Average weight,	Whole milk.	18 ounces.
12 pounds.	Boiled or cereal water.	12 ounces.
	Cane sugar.	2½ level tablespoonfuls.

Give 6 ounces every 4 hours. Total 5 feedings in 24 hours.

Orange juice.

6 months:

Average weight,	Whole milk.	21 ounces.
14 pounds. (Birth	Boiled or cereal water.	19 ounces.
weight doubled.)	Cane sugar.	2½ level tablespoonfuls.

Offer 8 ounces every 4 hours. Total 5 feedings in 24 hours.

Orange juice.
Cooked cereal.[21]
Vegetable soup.[22]

9 months:

Average weight,	Whole milk.	27 ounces.
18 pounds.	Plain boiled or cereal water.	13 ounces.
	Cane sugar.	2½ level tablespoonfuls.

Give 8 ounces every 4 hours. Total 5 feedings in 24 hours.

Orange juice.
Cooked cereal.
Vegetable soup.

NOTE.—If milk sugar is used 1½ tablespoonfuls should be used in place of 1 of cane sugar.

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[20] See recipe, p. 99. [21] See p. 99. [22] See p. 102.

12 months:

Average weight, 21 pounds. (Birth weight trebled.)

6 a. m. Whole milk, 8 ounces, or
Milk, 6 ounces, diluted with barley or oat gruel, 2 tablespoonfuls.

9 a. m. Fruit juice, 1 to 2 ounces, diluted with water, ½ to 1 ounce (or may be given at 5 p. m.).

10 a. m. Cooked cereal, or cereal jelly, 1 to 3 tablespoonfuls, served with milk.
Milk, 6 ounces, to drink.

2 p. m. Vegetable soup, 8 ounces, served with bread crumbs, or
Green vegetables, 1 to 2 tablespoonfuls, mashed or finely divided, and 1 to 2 tablespoonfuls beef juice with 1 tablespoonful of well cooked rice, or barley, or macaroni, or spaghetti.
Milk, 8 to 10 ounces.

6 p. m. Milk, 6 to 8 ounces, with
Dried bread, ½ slice or gruel, 1 to 2 tablespoonfuls.

THE BABY FROM 1 TO 2 YEARS.

FOOD.

Infancy is usually considered to cover only the first two years of life; in reality it can not be so sharply defined, but should include at least the period before the first 20 teeth are cut. During the year or more that immediately follows breast feeding one of the most important and fundamental changes in the child's entire history should take place. This is the transition from liquid food to a solid diet. At this time the child should be taught to take a well-balanced diet, especially an abundance of growth-producing foods.

Proper food habits must be acquired at this time, or they are likely never to be acquired. Every child should be trained to take the right amount and the right kind of food, and to eat at regular hours. Fast eating or washing down unchewed food with liquids should be prohibited. The young child tends to bolt his food without careful chewing; he must be given food that demands chewing and be taught to chew it. Both good digestion and perfect nutritive condition depend largely on the observance of these details.

Few mothers realize the importance of this transition period between the diet of infancy and that of childhood. Some make the mistake of keeping the baby too long on milk as the exclusive or nearly exclusive food. Many others unthinkingly give the tiny baby tastes of anything they happen to be eating, without thinking whether or not it is nourishing or suitable for an infant. In either case the baby fails to learn to eat the food that is good for him, and often his digestion is upset as well. Much of the sickness and malnutrition of older children can be traced back to carelessness in feeding at this period or lack of discipline in enforcing proper food habits.

For the best growth and development every child's food must contain an abundance of animal protein—found especially in milk, eggs, meat, fish, and fowl—minerals, and vitamines, whose chief sources are milk, green vegetables, fruit, eggs, and meat. Starchy foods are also a necessary part of the diet of every well child and indeed form the bulk of the food. Starch, sugar, and fat furnish body heat and may be called "energy foods."

The growth and energy-producing foods necessary for healthy development are:

1. Milk.
2. Starchy foods, such as cereals, potato, bread, and rice.
3. Fruits.
4. Green vegetables.
5. Butter.
6. Eggs.
7. Meat, fish, and fowl.

Every mother should be aware of the nature and value of each of these foods and know how best to prepare them for infant use.

Milk.

After 1 year, as other foods are added to the diet, the baby will take less milk, but the amount should be at least 1½ pints of milk a day. Weaning from the bottle should be begun before 1 year, so that by 13 or 14 months the baby drinks from a cup. It is harmful to continue bottle feeding beyond this time.

Starches.

Thoroughly cooked cereal, such as farina, cream of wheat, barley, rice, or oatmeal, should be given every morning, and may be repeated at the evening meal, as the child grows older. From 1 to 4 tablespoonfuls of cereal may be given at a meal. Ready-to-serve package cereals are not as good for children as cooked cereals. (See p. 99.)

Vegetables.

During the second year a well child should take 8 ounces of vegetable soup or two or three heaping tablespoonfuls of vegetable puree at his noon meal.

The following cooked vegetables are allowed: Peas, string beans, carrots, spinach, celery, lettuce, aspargus tips, young beets, young onions and artichokes. All of these vegetables must be put through a fine sieve. Spinach, carrots, or other vegetables may appear in the stools, unchanged, but this may be disregarded if there are no signs of indigestion. Dried peas and beans may be given in purees.

Tubers, such as potato, should not be considered as green vegetables. They are in reality largely starch, and, although valuable for their mineral content, do not take the place of leaf or root vegetables in the diet. By 14 months a starchy vegetable or food such as potato

or rice, macaroni or spaghetti may be given with vegetable soup or boiled vegetables at dinner. Rice, macaroni, spaghetti, or barley may be given in the soup.

Eggs or meat.

Eggs should be added to the diet by 14 months. They should be soft boiled or coddled. They should be given at the noon meal. Beef juice or scraped meat may be given in place of eggs.

Fruits.

By the end of the eighteenth month, the baby should be taking orange pulp or scraped apple, and the pulp of cooked and strained fruits such as apples and prunes or home-canned fruits or well-cooked dried fruits.

Water.

Babies at 2 years can ask for a drink of water. At this age a child is usually allowed all the water he wants, between meals. Unless the water supply is of unquestionable purity the water should still be boiled.

FEEDING INTERVALS.

At the end of the first year, the baby should be taking his food every four hours, having not more than 4 meals in 24 hours.

After 14 months the meals take on the character of breakfast, dinner, and supper, with milk the first thing in the morning or before the nap at 10 or 11 a. m.

Nothing but water or fruit juice should be given between meals.

GROWTH.

The average yearly gain during the second year is 6 pounds. At 2 years of age a child usually weighs 25 to 26 pounds.

Twelve inches is the average gain in height during the first two years, so that at 2 years the average height of an infant is 32 inches.

SUMMARY OF FEEDING, 14 MONTHS TO 2 YEARS.

9 a. m. Milk, 8 ounces; crisp toast or zwieback, small slice.
9 a. m. Fruit juice, or pulp, 1 to 2 ounces.
10–10.30 a. m. Cereal, 3 to 4 heaping tablespoonfuls, strained or unstrained; upon this, milk and a pinch of salt.
Milk, 4 to 6 ounces to drink;
Crisp toast, dry bread, or zwieback, 1 slice.
NOTE.—10 a. m. and 7 a. m. feedings may be reversed.
2 p. m. Meat or egg:
1 egg, soft boiled or coddled;
or,
beef juice, 2 ounces;
or,
scraped beef or lamb or minced chicken, 1 to 2 tablespoonfuls;
and

Vegetable:
Vegetable soup, 8 ounces;
or,
1 starchy food[23] and 1 green vegetable,[23] 2 or 3 tablespoonfuls;
and
Bread: Dried toast or zwieback, 1 slice;
and
Simple dessert: 1–2 tablespoonfuls junket, boiled custard, gelatin, cornstarch, rice pudding, or prune whip.

6 p. m. Milk, 8 ounces.
Dried toast or zwieback, 1 slice.
Cereal, 3 heaping tablespoonfuls; upon this milk and a pinch of salt.
Cooked fruit, 1 or 2 tablespoonfuls.

THE SICK BABY.

A mother should know the ordinary symptoms of disease in order to decide when it is necessary to send for a doctor. As she usually acts as nurse, she should also understand the essential principles of caring for the sick.

A sick baby is a difficult problem. He can not explain his suffering or discomfort, and the observation of the mother must overcome this handicap. A young child often becomes ill with alarming suddenness and may be desperately ill in a short time. Prompt and skillful nursing is, therefore, more necessary with children than with adults.

WHAT A MOTHER SHOULD NOTE.

The mother should learn to read a clinical thermometer so that she may know whether or not her child has a fever. A thermometer may be purchased at any drug store and her doctor or the druggist will be glad to show her how to read it.

The baby's temperature normally ranges from 98.6° to 99.5° F. The temperature of a baby is much more variable than that of an adult, and a temperature higher than 99.5° F. is not unusual even in babies who are not sick. If the temperature is higher than 100° F. the doctor should be notified. A baby's temperature should always be taken in the rectum. It is wise to purchase a thermometer with a thick bulb for taking a rectal temperature. The bulb should be smeared with vaseline or oil and inserted into the rectum for at least an inch. The thermometer should be held in the rectum for at least three minutes and care taken that the baby is kept quiet so that there is no possibility of breaking the thermometer. In most cases it is just as well not to take the temperature frequently because it may cause unnecessary worry to the mother and annoyance to the baby.

Children are more likely to have fever than grown persons. A rise in temperature frequently accompanies even a slight upset in

[23] See p. 77.

children, but a *continuous* fever, even if slight, is more important than a higher temperature for a short period.

The pulse and breathing are difficult to count in infancy. A mother should note how rapid they are when the child is well so that in case of illness she may detect any difference.

The mother should also observe the normal position of the child's body, the expression of his face and his color so that indications of discomfort, pain, or unusual irritability can be quickly noticed. The character and number of bowel movements and the amount and color of the urine should be watched. The mother should note the color of the tongue and throat and the condition of the skin.

ESSENTIALS IN CARING FOR A SICK CHILD.

A young child who has any rise in temperature should be kept in bed in a cool, quiet, well-ventilated room and should be allowed to rest or sleep undisturbed as much as possible. A fussy, uncomfortable baby, or a child showing evidence of physical discomfort but without fever, should be treated in the same way.

The sick room should not be a gathering place for the family or neighbors. Even if no contagious disease is suspected a sick child should be kept away from other children until the trouble is known. This one precaution, if observed faithfully, would do much to stop the spread of communicable disease.

The doctor should be promptly notified of the illness of a baby, and the mother should keep a written record of the temperature, rate and regularity of the pulse and respiration, cough, crying, evidence of pain, and general appearance of the child. She should note the amount and kind of food taken, amount of water, number and character of stools, amount of urine passed, vomiting, or any unusual symptom. A specimen of the stool and urine should be saved for the doctor to see.

When orders are given by the doctor, they should be carried out carefully and exactly. The mother should put down daily on a sheet of paper, or a chart, the hour at which she performed each detail, the result, and any unusual symptom noted.

If a doctor can not be secured, the following general directions for nursing care should be observed. A child should be kept in bed as long as he has a temperature over 99.5° F. If his illness has been at all severe, he should stay in bed from three days to one week after his temperature has remained normal (98.6° to 99.5° F.) for 24 hours. The after effects of many diseases may be largely prevented by prolonging this care during convalescence.

Frequent changes in position while in bed are important not only to rest the child, but also to prevent congestion of any part of the body.

A daily sponge or tub bath should be given. A bath for fever (about 90° F.) may be given once or twice a day or oftener, if the fever is high. The temperature of the bath should be tested by a thermometer. Every precaution should be taken in bathing a sick child not to chill him by undue exposure nor to frighten or excite him. A cold compress or ice cap may be kept on the head during fever, while bathing to reduce the temperature, or while giving a warm pack. If the hands and feet are cold, hot water bottles may be used.

The food should be reduced in every acute illness.[24]

The taking of water is of the greatest importance in illness. Water should be offered at very frequent intervals, possibly every hour while the child is awake, and the amount taken in 24 hours should be recorded.

The bowels of a sick child should be moved daily; if necessary, an injection, or enema, of warm water may be used for the purpose. The amount of the urine should be noted, and more water should be given to drink if the amount of urine is scant.

Plenty of fresh air in a well-ventilated room, or on a porch, where the sick bed may be placed in summer, is part of the necessary treatment in any sickness. In winter, the sick room may be kept moderately warm (60°–68° F.) in the daytime while the child is awake, but may usually be kept cooler at night, or when the child is asleep.

A child that has been trained in proper health habits and has been accustomed to having the details of his toilet carefully attended to is much easier to take care of in sickness. It is also helpful if a baby has been taught to show his tongue and throat and to allow himself to be handled. A child should never be frightened by threats of punishment.

The comfort and happiness of the baby or young child do much to shorten recovery from sickness, but strict discipline must be maintained as to nursing care and the carrying out of the doctor's orders. The way a child is managed makes the greatest difference in what can be done for him. Even a young baby is conscious of the difference between quiet, skillful handling and noisy or clumsy treatment, and responds quickly to gentle, restrained methods.

COMMON DISORDERS AND DISEASES OF INFANCY.

A very brief description of the most common disorders and infectious diseases of infancy follows, but no attempt has been made to give a detailed account of their cause, nature, or treatment.

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[24] See p. 82.

Sudden illness.

In any slight indisposition with fever, such as a bad cold, the food should be diluted by giving less whole milk and more water in the 24-hour feeding. Solid food should be omitted. A doctor should be called, as a serious development may follow any slight illness in a young child. If no doctor can be seen, as a rule it is wise to give a child sick with fever an enema.

Vomiting.

Vomiting is frequently an early and usual symptom of overfeeding. Many babies spit up a little just after feeding, especially if they are handled at this time. In reality, this is a "spilling over" which may happen to any baby and not infrequently it is caused by feeding too often. In such cases lengthening the feeding intervals to 4 hours is the only treatment necessary.

Too much food may cause spitting up, and the amount may be decreased.

The food may be taken too rapidly. For the artificially fed baby the holes in the nipple should be small enough to prevent this. If breast-fed, the baby should be removed from the breast for short breathing intervals. Air swallowed while nursing may cause vomiting. To remedy this the baby may be taken up and held against the shoulder until the air is expelled.

For repeated vomiting, a physician should always be consulted.

It must not be overlooked that vomiting is frequently an early symptom in infectious diseases; therefore, when vomiting occurs in a well baby it is best to stop the food, giving only boiled water until the cause is determined.

Hiccough.

In small infants, hiccough is not infrequently associated with overfilling the stomach with food, by too frequent feeding intervals, or by taking the food too rapidly. It usually follows eating, and may be associated with air or gas in the stomach. Giving the baby a few spoonfuls of hot water usually stops it.

Colic.

Colic is due to the pressure of gas in the stomach or bowels. In the severe forms of colic the diet should be carefully studied, as not infrequently this is the source of the trouble. The treatment of the immediate symptoms consists in getting rid of the gas. Holding the baby over the shoulder with a bag of warm water pressed against his abdomen or gently rubbing the abdomen will help to raise the gas. A little hot water and a pinch of soda bicarbonate may help. One or two small injections of warm water in the rectum by means of a

small bulb syringe may give relief. The baby should be kept warm, especially the hands and feet.

Constipation.

Constipation may occur in both breast- and bottle-fed babies. It is due to a variety of causes, but can usually be overcome by training and change in diet without the use of drugs. The correction of this condition often requires the treatment of constipation in the mother.[25]

Training to establish the habit of a regular daily bowel movement can not be begun too nearly in infancy. Many mothers have this regulated after the second month, and it is a most important measure in the prevention of constipation.[26] Constipation is also helped by plenty of water. The older the baby, the more important it is that he should drink water, or take it from a nursing bottle. Water should be offered to a young infant at least once or twice a day, a few ounces at a time; a year-old baby should take 6 to 8 ounces a day. Drinking water should be boiled and cooled.

Fruit juice, such as orange juice and prune juice, will help very much in making a soft movement. Cereals, especially oatmeal and graham gruel,[27] vegetable and fruit pulp are also laxative.

If an infant does not have a movement for 48 hours it may be necessary to resort to temporary measures for relief.

Massaging the abdomen gently with a rotary movement just before the time for a bowel movement may be beneficial.

A simple and effective massage for emptying the lower part of the large intestine is carried out as follows:

Place the balls of the fingers in the lower left-hand portion of the abdomen moving them upward by a series of circular movements to above the navel on the left side, then carry the movements across the abdomen just above the navel to the right side and end by passing down on the right-hand side and over to the middle line low down. (This movement is used for emptying the lower part of the large bowel; for massage of the first part of the large bowel the movements are in the opposite direction.)

Soap or other suppositories [26] may be used instead of an enema. Neither enemas nor suppositories should be used over long periods of time, as irritation of the rectum may result.

An enema or injection may be given. For this purpose prepare warm soapy water, using a mild white or Castile soap and a bulb syringe holding from 1 to 3 ounces. To fill, squeeze the bulb, while holding the nozzle under water; when the bulb is released it will fill with water by suction. Let the baby lie on his back across the

[25] See p. 49. [26] See p. 42. [27] See p. 99.

mother's lap, or on a table, having the buttocks somewhat elevated by means of a folded towel placed under the hips. This position will cause the water to run up into the bowel more readily and the towel will serve to catch any drip. Grease the nozzle of the syringe with vaseline. Lift the baby's legs with the left hand and with the right introduce the nozzle into the rectum for about 1 inch, directing it toward the back, and slowly expel the water from the bulb. This causes the baby little or no suffering if gently and slowly done, although if he is badly constipated the starting of the movement may be somewhat painful. When the liquid has been injected, remove the nozzle and press the towel against the opening of the bowel to retain the water until the baby can be placed over the chamber. As the water sometimes comes away as the nozzle is withdrawn, the mother's clothing should be well protected. Use 2 or 3 ounces of warm, soapy water, and repeat, if necessary.

If the constipation is especially severe, 1 to 2 tablespoonfuls of warm olive or sweet oil may be used instead of the soapsuds. This may be given at night and retained.

Mineral oil, which is not absorbed but which acts as a lubricant of the bowel, may be given safely to young infants in a teaspoonful dosage once or twice a day. Milk of magnesia, one-half to 2 teaspoonfuls, may be given if preferred until the constipation is regulated. The magnesia may be put in the bottle feeding or given from a teaspoon just before the breast or bottle feeding. Castor oil should not ordinarily be used as a laxative, as its after effect is constipating.

Diarrhea.

Although serious attacks of diarrhea and dysentery may occur in any season, they are much more common in warm weather. Breast feeding, good hygienic surroundings, pure milk supply, and knowledge of the proper methods of artificial feeding and the care of young children are the effective means of preventing this condition.

Whenever a young child has watery stools, or mucus and blood in his stools, a physician should be called at once. No food should be given until his arrival. Boiled water should be given frequently but in moderate quantities. The rapid loss in weight, which is a marked feature of the disease, is largely due to loss of water, and therefore the giving of water is necessary to replace this loss.

A slight diarrhea or a number of loose, undigested stools in the artificially-fed baby who is doing well calls for an immediate reduction in the food. A safe rule is to dilute the food by pouring out half the next bottle and filling it with boiled water, or, if the food is not made up, by taking only half as much milk and sugar as have

been given, and making up the total with boiled water or cereal water. The doctor should be notified.

If no physician is available, and if the loose movements continue, one small dose of castor oil, 1 or 2 teaspoonfuls, should be given and the baby allowed no milk for 24 hours. Boiled water or cereal water should be offered at frequent intervals. This is usually sufficient for simple diarrhea. The return to milk should be made gradually, and at first the milk should be skimmed and boiled for five minutes. The mixture should be started at one-half the previous strength.

Overfeeding may cause diarrhea, and is remedied by lengthening the interval or reducing the strength of the mixture.

Where spoiled food is suspected as a cause, a single dose of 1 or 2 teaspoonfuls of castor oil may be given. Diarrhea should always be considered a serious condition in bottle-fed babies, and should therefore be treated by a doctor.

Milk from cows fed from fresh ensilage or alfalfa hay, etc., may cause sudden diarrhea in infants and small children.

Hot-weather disturbances.

Digestive upsets are more frequent in hot weather than at any other time. Milk is more easily contaminated when the temperature is high and when flies abound.

In hot weather every effort should be made to keep the baby in a cool place, to keep him lightly clad, to give him frequent sponge baths, and to have him drink an abundance of cool, boiled water.

The value of breast-feeding is at no time more clearly demonstrated than in the summer months. Digestive upsets, diarrheal diseases, and deaths from such disorders at this season are relatively infrequent in babies fortunate enough to have mother's milk. *In hot weather all cow's milk should be scalded and should be handled with special care.*[28]

An infant should not be urged to finish his bottle or to eat if he is not hungry. During short periods of excessive heat, the amount of milk given in the 24 hours should be reduced.

Scurvy.

Scurvy is a disease caused by a lack of certain elements in the food. The condition is rare in breast-fed babies or those fed on raw milk, but is found chiefly in artificially-fed babies who have lived for long periods on sterilized or proprietary foods. Scurvy may be prevented and cured by the feeding of fresh fruit and vegetable juices in addition to the milk.

Rickets.

Rickets is a disease of nutrition in which the bones are the parts most affected. The bones become softer than normal. Bowlegs,

[28] See p. 63.

knock-knees, flat-foot, and chest deformities frequently result. Sweating of the head and restlessness are common in rickets.

The treatment consists in proper feeding and in good hygienic conditions. Bad living conditions and lack of fresh air always aggravate the disease.

Heat rash.

This rash may appear either in summer or in winter; it is associated with unusual perspiration, or the irritation of wool next to a sensitive skin. A rash of fine red spots usually comes out first on the neck or chest. Lighter clothing should be substituted and soft muslin or linen placed next to the skin. The body or the parts affected should be sponged frequently, or dabbed with bicarbonate of soda and water, or powdered with starch and boric-acid powder (2 parts of starch to 1 part of boric acid).

Chafing.

Chafing is a redness or irritation of the skin appearing usually in the folds of the skin or on surfaces that rub or touch. It is frequently found in fat babies. Chafing may also occur on the buttocks if wet diapers are not changed frequently enough, if the skin is not carefully cleaned and dried after a bowel movement, or if the soap has not been carefully rinsed out of the diapers.

Cleanliness is, therefore, of primary importance in preventing this condition.

A dusting powder of boric acid and starch or cold cooked starch paste may be freely used on the chafed skin and pieces of soft linen may protect the sensitive surfaces. Little or no soap should be used. Bran [29] may be put into the water used for bathing, or oil instead of water may be used for cleaning the irritated skin.

Eczema.

A variety of skin disorders, common in infancy, are grouped under this general name. Certain children show a tendency to eczema from birth. Any irritation, caused by tight clothing, dirt, mucous discharges, or strong soap, may cause redness or an eruption which may be either oozing moisture or covered with crusts. By removing the local irritation the skin trouble may be entirely cured. Eczema may come and go, but it is always increased by uncleanliness and unhygienic living conditions.

Eczema may occur in both breast- and bottle-fed babies. These children may be small and delicate from birth, but most frequently large, fat babies are the ones affected by this disease. Eczema seems to bear a definite relation to overfeeding, especially with mixtures containing too much fat.

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[29] See p. 26, Bran bath.

If a breast-fed baby has eczema, do not wean him, but give him a little warm water just before nursing and lengthen the interval between feeding and shorten the nursing period.

Bathing with soap should be given up entirely, and the use of water has to be omitted in severe cases, cleaning the skin with oil instead. Bran baths are very soothing.[30]

The diet and local treatment should always be directed by a physician, as children with eczema have to be carefully treated for a long time.

Scratching must be prevented and usually some restraint of the hands is necessary to accomplish this. A starched cuff or tube made of cardboard or other stiff material to prevent bending the elbows may be fastened in the sleeves which are pinned to the sides to prevent the hands from reaching the face. White mittens or stockings on the hands may also be found useful.

Thrush.

The inside of the cheeks and less frequently the lips and tongue may be covered with small white spots, which may be run together and cover the whole inside of the mouth and even continue down into the throat. The mouth in this condition should be washed before and after each feeding, or even every hour while the baby is awake, with bicarbonate of soda and water (1 level teaspoonful to 3 ounces of boiled water). Great care should be taken not to hurt the mucous membrane. If the mucous membrane is irritated by rubbing when swabbing the mouth it will aggravate the condition. Great precaution should be taken to sterilize everything put into the baby's mouth, for thrush is due to a mold. It follows a lack of cleanliness in care of artificial nipples or use of dirty "pacifiers." Carelessness will lead to infection of other infants.

Convulsions.

Convulsions always terrify mothers, but fortunately are not usually serious. Most convulsions are not due to disease of the brain or nervous system, but are caused by undigested food in the stomach or bowels, or from the absorption of poisons from the intestinal tract. Convulsions appear most often in early childhood and in children suffering from nutritional disorders. They are also frequent at the beginning of acute infectious diseases. As the condition may be serious a physician should always be sent for. While waiting for him to arrive the baby should be undressed and put into a bathtub of warm water. Great precaution should be taken, however, not to have the bath too hot. Many babies have been seriously burned because the mother, in her excitement, used too hot water for the bath. The temperature of the water should be taken with a bath ther-

[30] See p. 26, Bran bath.

mometer, and should not be over 105° F., or, if tested only by feeling, the elbow should be used for the purpose, as it is more sensitive than the hand. An ice cap or cold cloth should be kept on the baby's head. The child should be disturbed as little as possible, and should be put to bed when the twitching subsides.

If the doctor does not come, the baby should be given an enema and the bowels thoroughly evacuated. The enema should be repeated until the bowels are emptied. If it is known that the child has been eating unwisely, a dose of castor oil (from 1 to 3 teaspoonfuls) may be given. A child should stay quietly in bed for several days after a seizure of this kind; he should be given nothing but water for the first 24 hours, and should have his food considerably reduced for several days.

Worms.

Pinworm is practically the only worm common in infancy. When it is present, examination of a stool recently passed will reveal tiny threadlike worms less than half an inch in length. No treatment should be started unless the worms can be detected and can be seen in motion. As pinworms inhabit the lower bowel, as a rule only rectal treatment is needed, and this is fairly simple under a physician's directions. Scrupulous cleanliness must be observed, in order not to infect other members of the family, or to reinfect the child. Worm medicines are not to be taken except on the advice of the physician.

Colds.

Babies are frequently the victims of cold in the head, because of their thoughtless exposure to some one suffering from this complaint. All colds are contagious and isolation of the baby from them is necessary if spreading is to be prevented. Infection is usually contracted from the sneezing or coughing of some careless person or by unclean hands and handkerchiefs. Too warm living or sleeping rooms, too heavy clothing, too little outdoor air, or exposure and chilling, or enlarged adenoids help to make young children susceptible. Since many of the contagious diseases begin with sore throat or a running nose it is important to isolate all babies with colds.

If the mother has a cold she should make every effort to protect her baby from taking the cold from her. She should wash her hands thoroughly before handling the baby or preparing his food. If she is nursing the baby she should cover her mouth and nose with four thicknesses of cheesecloth or surgical gauze while the baby is at the breast or while she is bending over and caring for him.

Colds in the head cause difficulty in breathing. Two or three drops of liquid vaseline in the nose three or four time a day help to keep the passages clear and make breathing easier. Rest in bed is an

essential part of the treatment of every bad cold, but the room should be well ventilated and not overheated.

Adenoids.

Enlarged adenoids may occur at any time during infancy or childhood and babies are even born suffering from such enlargement. Symptoms of the blocking of the nose by adenoids are disturbed sleep, snoring, sleeping with the mouth open, and inability to nurse for any length of time without having to stop to get air through the mouth. Repeated head colds, chronic discharges from the nose, anemia, and malnutrition may result from adenoids. The serious effects of adenoid enlargement, such as mouth breathing, deafness, contracted jaw, and interference with normal growth and development, make their removal necessary. As soon as a child shows the symptoms mentioned above, he should be examined by a physician to detect the presence of adenoid growths, and if found, they should be removed as soon as the examining physician considers it desirable. If adenoids should recur and again cause trouble they should again be removed.

Enlarged tonsils.

This disorder may also occur in infants from the same causes as adenoid growths. The tonsils should be called to the attention of a physician, and they should be removed if they become diseased or if their enlargement is such that they block the air passages.

In general, if the tonsils are not a menace to the health of the child, it is better not to have them removed during infancy.

Earache.

Pain in the ear may be severe and is often indicated by screaming and putting the hand to the side of the head. Hot compresses or a hot-water bag often relieve the pain. Nothing should be put in the ear except under a doctor's order, as more harm than good may result. The frequent infection of the ear from colds or adenoid growths has been mentioned.

Croup.

Babies and young children not infrequently have croup. The attack usually comes on suddenly at night when the baby who went to bed apparently perfectly well wakes up with harsh, noisy breathing, or a dry, barking cough, and some difficulty in breathing. The child is usually frightened and his fright increases the symptoms. Croup of this simple or catarrhal nature may be mistaken for diphtheritic or membranous croup, which is a most dangerous disease. The symptoms in diphtheritic croup usually do not develop

suddenly, but there is a gradual loss of voice, and the symptoms grow progressively worse and do not yield to simple measures of relief. Death follows diphtheritic croup from obstructions unless antitoxin is given early and the child is under constant medical supervision. In all cases of croup a physician should be consulted and in every case of doubt a culture should be made to ascertain the presence or absence of diphtheria germs.

In simple croup the greatest relief is obtained by keeping a teakettle boiling in the room near the child; a tent made with a raised umbrella and a sheet thrown over it is placed over the child; and the steam from the kettle is introduced under the tent by means of a long horn of stiff paper fitted into the spout of the kettle. This improvised croup kettle should be kept going until some relief is obtained. Great care should be taken to prevent scalding the baby. The baby should not be left alone while the kettle is boiling. Hot or cold compresses over the throat may also be helpful. If the child's breathing becomes too difficult vomiting should be induced by giving a half teaspoonful of sirup of ipecac, which may be repeated in 15 minutes if vomiting has not occurred.

The day after the attack the child should be kept quiet and in bed, and the diet should be very simple for several days. The air in the sleeping room of a child having croup should be kept warm and fresh.

ACCIDENTS.

Swallowing foreign bodies.

As soon as the infant begins to creep he is liable to pick up and swallow anything small which is left within reach. All the members of the family must constantly keep this in mind and not leave within reach anything that the baby can put into his mouth. Ordinarily such objects as coins and pins pass through the intestines without causing any damage. A child who has swallowed any article should be watched, but if no symptoms develop no treatment is necessary. The stools should be examined for the swallowed article. No laxative should be given.

Swallowing pills or poison.

If the infant has swallowed a pill or possible poison he should be made to vomit by being given a teaspoonful of sirup of ipecac or warm salt water in large quantity, which should also be vomited. This will wash out the stomach. A physician should be called at once.

Burns.

Hot liquids or hot irons should not be left within reach of infants. While holding an infant one should not handle hot dishes. Open

fires should be screened so securely that the children can not fall in. In case of burns apply oil freely and cover with clean cloths soaked with oil. If oil is not at hand use white of egg.

Inhaling foreign substances.

Children are frequently given a box of talcum powder for a plaything. This is unwise if the box contains powder, for at times when the baby puts the box in the mouth the cover comes off and the powder is drawn in through the nose and mouth into the lungs, and fatal results follow.

COMMUNICABLE DISEASES.

A certain group of diseases especially common in early childhood are often called children's diseases. The so-called infectious diseases include "acute eruptive fevers" (scarlet fever, measles, German measles, chicken pox, smallpox), whooping cough, mumps, diphtheria, infantile paralysis, and cerebrospinal meningitis. These diseases as well as all contagious diseases are spread from person to person, largely by direct contact or contact with the excretions or secretions from the person suffering with the disease. This means that contagious disease is carried because some one was ignorant or careless enough not to prevent its spread.

The younger the baby the more serious is the disease apt to be; therefore every effort should be made to keep a baby from getting any of these diseases. Any child suffering with a contagious disease should be kept on his own premises, or at least away from other children, as long as there is any possibility of his giving the disease. In most States this quarantine or isolation of disease is compulsory by law for at least those diseases considered most dangerous. Children may have a second attack of any one of these diseases, but this is rare and not the rule. It is wise to employ a physician even in mild cases.

Every effort should be made to prevent infection and spread to other members of the household, especially other children. Parents must realize that they have a responsibility to the community as well as to the patient.

How to prevent the spread of children's diseases.

Disease germs are found chiefly in discharges from the sick person's nose, throat, mouth, eyes, or ears. By contact with these discharges contagious diseases may be communicated to well persons. When a patient coughs or sneezes many droplets laden with disease germs are forced into the air. Handkerchiefs, towels, dishes, or any articles which have been near the patient may be contaminated by these poisons.

In order to prevent the spread of disease these discharges should be destroyed as soon as they leave the body. Certain general directions follow:

The sick room.

Choose a room that is sunny, well-ventilated, and screened. It is an advantage to have it near the bathroom. Remove carpets, rugs, upholstered furniture, and hangings. Leave in it only such necessary furniture as can be washed and such toys and books as can be destroyed. Have plently of hot water easily available. Provide clean old muslin, absorbent cotton, or paper napkins to be used instead of handkerchiefs, and paper bags into which these can be dropped. Have a generous supply of bed linen. Dusting should be done with a damp cloth. A large covered slop jar may be used in the room unless there is a toilet close by which can be devoted to the sole use of the patient.

The nurse.

When in the sick room the nurse should wear a washable cap and a cover-all apron or gown. When she leaves the room she should remove cap and gown, wash her face and scrub her hands thoroughly in soap and water. She may use rubber gloves, especially if there is a discharging wound to be dressed. The nurse should never eat in the sick room. A cap and gown should be kept for the physician's special use.

The patient.

Take special care of everything which comes in contact with the patient.

The outer clothing, worn when he was taken ill, should be brushed in the open air and exposed to the sunlight for at least one day. Towels, bed linen, and washable clothing should be boiled for 10 minutes in soapsuds before going to the general wash. All dishes should be boiled in soapsuds after use, and kept separate for the patient. Remnants of food should be burned. Sputum and discharges from the eyes, ears, nose, and throat, or wounds, should be received in clean muslin or absorbent cotton or paper napkins. These should be dropped in paper bags and later burned without opening the bags.

At the end of quarantine the patient should have a thorough bath and shampoo. The mouth should be carefully cleansed, and he should be dressed in entirely clean clothing in an adjoining room.

Disinfecting the sick room.

After the illness, clean the room thoroughly. Scrub the floor, woodwork, and furniture with soap and hot water. Wipe the walls

with cloths wrung from a 1-1000 bichloride [31] solution and leave the windows wide open. If the illness is scarlet fever, diphtheria, or smallpox, repapering and painting are desirable. Destroy toys and books; boil in soapsuds all washable bedding; send mattress and unwashable bedding to a steam disinfecting place if possible, or expose to sunlight for two or three days and beat thoroughly in the open air.

If the bathroom or any other room has been used by the nurse, it should be cleaned in the same way.

Air fumigation has been found to be of little value. Scrubbing with soap and water and exposure to sunshine are the best disinfectants.

Whooping cough.

This disease is one of the most serious in early infancy and every means should be employed to prevent a child from contracting it. It usually begins as a cough without fever, and the whoop does not develop until the cough has been present for about two weeks, or sometimes even longer. Vomiting frequently follows a severe spell of coughing.

When there is an epidemic or a suspicion of whooping cough every child with a cough should be considered suspicious and should be kept away from other children until the diagnosis has been established. This is one of the few diseases where a child need not go to bed (unless he has fever), but he should be restrained from violent exercise or exertion.

Frequent feeding to prevent excessive loss in weight and lowered resistance, may be necessary if vomiting persists.

Plenty of fresh clothing and bedding, frequent but careful bathing, and prompt burning of the expectorations help prevent the spread of the disease. The sleeping and living rooms should be well ventilated and, if the weather permits, the more a child can be out of doors, the better, but he should be isolated from other children. The child can probably give the disease for at least six weeks from the time of infection.

Measles.

Usually about 14 days after exposure and after 3 or 4 days of symptoms of cold in the head, running nose and eyes, with fever, an eruption appears on the inside of the mouth and on the skin. The skin rash begins with small, dark-red spots on the face and within 2 or 3 days spreads over the body. It fades during the week, leaving a fine branlike scaling which often goes unnoticed. The child

[31] Directions for making the solution will be found on the label of the box of bichloride tablets, which may be purchased from any drug store.

should stay in bed and be kept warm at least a week. The eyes, if sensitive, should be protected from strong light. The room should be well ventilated but moderately warm. Measles is most contagious in the early stages before the rash appears, but may be given for at least one week or much longer if there is a discharge from the nose or ears.

German measles.

This is a different disease from measles. Often there is little fever and catarrhal symptoms are absent (cold in head, running nose and eyes) so that the disease begins suddenly, usually 14 days after exposure, with a rash which spreads rapidly and lasts a few days. Frequently the glands in the back of the neck are enlarged. Without complications, recovery is rapid. Isolation for two weeks is sufficient.

Scarlet fever.

Usually from 2 to 5 days after exposure, this disease starts with fever commonly accompanied by vomiting and sore throat. The whole throat, as a rule, is very red. A bluish red rash appears first on the neck and chest on the first or second day, gradually extends over the entire body, and disappears by the eighth day. A characteristic of the disease is the peeling of the skin following the disappearance of the rash. On the trunk the skin peels in fine branlike flakes and the peeling is completed in from one to three weeks. Peeling continues longer where the skin is the thickest, the palms of the hands and the soles of the feet, and lasts four weeks and frequently six or eight weeks. Peeling here is in large patches or casts. In very mild cases where the rash has not been observed this characteristic peeling of hands and feet may be the only means of making a diagnosis, but in some cases there may be no peeling.

The child must be kept in bed for three weeks, even if no active symptoms persist, for the poisons which develop in the disease may cause serious and lasting injury.

Complications involving the heart, kidneys, glands, and ears are frequent and serious. Frequent examination of the urine is important.

The outcome of this disease is particularly influenced by the care given the patient. Chilling should be carefully guarded against. Fresh air and warm sponge baths, however, are beneficial, if properly given. It is important that plenty of water should be given. The diet at the beginning should be limited to milk, cooked cereals, and fruit juices.

All cases of scarlet fever should be considered contagious, and the patient isolated for at least four weeks and longer if the discharges from the mucous membranes still persist. Scarlet fever may be carried in milk.

Chicken pox.

About 14 to 21 days after exposure an eruption breaks out first on the face and chest. Some fever usually accompanies or precedes the rash. The rash first appears as raised red spots, then as water blisters, then scales or crusts. There may be few or many of these blisters, and fresh ones may appear while others are drying. It is important that the child should not scratch and infect the blisters. Powder or bicarbonate of soda solution [32] may be used for early itching and carbolized vaseline ointment to soften the crusts. There are usually no severe general symptoms or complications. The child should be kept in bed for three days or until no fresh spots appear.

The disease is probably infectious as long as the eruption is present. The child should be isolated as long as the crusts are present.

Smallpox.

This disease would be unknown if the Nation would avail itself of vaccination. This protection may last for years and in those cases where the disease is contracted after vaccination by those who may have lost part of their immunity, due to the lapse of years, the disease is usually very mild and results in slight scarring.

Children should be vaccinated against smallpox before they are 1 year old and then every 7 years while in school. If a baby has a skin disease it may be necessary to defer this temporarily.

Vaccination is absolutely harmless if done properly with good vaccine and the wound carefully protected from infection.

Diphtheria.

This disease sometimes occurs in infancy but is most common in children over 18 months and under 5 years of age. It begins usually two days after exposure and most commonly affects the nose and throat. Gray patches on the tonsils, soft palate, or the sides of the throat should suggest diphtheria. This membrane may be absent or it may appear in the larynx (see section on croup). Swallowing is usually difficult as well as painful. The glands of the neck become swollen. A bloody discharge from the nose is characteristic of nasal diphtheria and should always lead to bacteriological examination for diphtheria. The child usually has only a slight fever and may not appear severely ill, which adds to the difficulty of diagnosis. If antitoxin is given early and in sufficient doses, the symptoms usually improve rapidly. The membrane softens and loosens, and recovery begins. Absolute rest for three or four weeks is necessary to avoid ill effects from this disease.

No more serious disease than diphtheria exists, and, if suspected, a physician must be obtained if possible, for early antitoxin treatment

[32] One teaspoonful soda to 8 ounces water.

is imperative if recovery is to be assured. This disease is quarantined until all symptoms have disappeared and negative cultures obtained from the throat and nose of the patient. This is one of the diseases where the germs can be carried in the nose or throat of a third person who is himself healthy, and, like scarlet fever, it is not infrequently carried in milk.

Unless the other members of the family can be kept under careful supervision antitoxin should be given to them to prevent their contracting the disease.

Infantile paralysis.

Infantile paralysis usually occurs in epidemics in the warm months, but occasional cases may occur at any time. It usually begins about seven or eight days after exposure and without definite symptoms. There may, however, be fever, vomiting, slight diarrhea, or constipation, general weakness, prostration, irritability, drowsiness, headache, and nervous symptoms. Often muscular weakness or paralysis in the neck, back, hands, or feet is the first thing noticed. The child complains of pain on being moved and stands or sits with difficulty. This may not appear until the third or fourth day of the illness or even later. The child should be kept in bed, usually for three or four weeks, or at least until the tenderness disappears.

After the tender stage is past, definite treatment to reestablish muscle power and to correct deformities should be undertaken in a hospital or under the direction of a specially trained person, and should be persisted in for at least two years. Quarantine of the patient for at least four weeks should be observed. Children under 16 years in the same family, or who have been exposed to the disease, should also be subject to quarantine. The cases without paralysis and only slight symptoms are the ones most likely to spread the disease. Therefore all exposed children should be quarantined.

Summary of children's communicable diseases.

Disease.	Period of incubation.	Time of eruption.	Period of isolation.[a]
Chicken pox	14–21 days	First or second day.	Until crusts have disappeared—usually 2 weeks.
Diphtheria	2–7 days	None	Until cultures are negative—at least 2 weeks.
Measles	11–14 days	Third or fourth day.	During period of discharges—usually 2 weeks.
German measles	10–21 days	First day	1 to 2 weeks.
Scarlet fever	2–5 days	First to third day.	Until all discharges have ceased—usually 4 to 8 weeks.
Whooping cough	7–14 days	None	Until spasmodic cough ceases—at least 6 weeks.
Infantile paralysis	2 days to 2 weeks	None	4 to 8 weeks.

[a] Periods of isolation vary according to local health regulations.

NOTE.—Average figures are quoted in this table, but there may be wider variations.

Tuberculosis.

This disease causes so large a number of deaths during infancy that its prevention is of greatest importance. Babies are rarely born with tuberculosis, though babies of tuberculous mothers are often weak and offer little resistance to the infection. Babies acquire the disease from contact with an open case of tuberculosis or through milk.[33]

It is now generally believed that tuberculosis which develops later in life may be the result of a tuberculous infection in early childhood. A tuberculous mother may infect her child directly through droplets of sputum and for this reason a baby should not live in the house with a person suffering from active tuberculosis.

Gonorrhea.

Two forms of gonorrhea are met with in infancy, ophthalmia of the newborn (Baby's Sore Eyes)[34] and vaginitis.

Girl babies are not infrequently found to have a yellowish white discharge from the vagina. In many cases, this discharge is that of gonorrhea, contracted usually from some member of the household who is suffering from the disease. The germ may be carried from the infected person to the baby on the hands, or on washcloths, towels, or diapers.

In caring for a child with gonorrhea the mother or nurse should scrub her hands thoroughly with hot water and soap every time she handles the baby, and every article of soiled clothing and bedding used for the baby should be boiled one-half hour. The entire bath equipment should be strictly separated. The baby should wear a pad to catch the discharge, and these pads should be burned.

Prompt local treatment, under the direction of a physician, is necessary to cure this form of gonorrhea, which is often most persistent and difficult to stamp out.

Unless the utmost precautions are taken, this disease will spread to other infants, especially girls, who may come in contact with the sick baby or the person caring for the baby. A child suffering with the disease and even under treatment should be considered as a possible source of infection for as long as there is a discharge, and every care should be taken to prevent the spread of the disease.

Syphilis.

Gonorrhea and syphilis are classed together as "venereal diseases," against which the whole Nation is united in a campaign of prevention. Syphilis, unfortunately, is a disease which is common

[33] See section on how clean cow's milk is produced, p. 65.
[34] See Prenatal Care, p. 30.

during the first year of life. Syphilis is one of the principal causes of stillbirths. Young children rarely acquire syphilis after birth.

If this disease is known to have been contracted by the parents, their offspring should be examined by a physician and a blood test made after 6 weeks of age. A blood test of the parents should also be made. Prompt medical treatment may save the baby and if continued will usually prevent the serious later developments of the disease. Treatment of the mother while she is pregnant may prevent the disease from appearing in the baby.

FOOD RECIPES.[1]

BUTTERMILK AND WHEY.

Buttermilk.

Obtain fresh culture of lactic acid bacilli at drug store. Allow milk to stand at room temperature or warm slightly to about 80° to 90° F. Raw, pasteurized, or boiled milk may be used, either whole or skimmed. Place milk in earthenware dish, previously scalded. Stir in culture, cover, and allow to stand in a warm place (about 80° F.) until the curd is formed (12–24 hours). Beat with egg-beater until the curd is thoroughly mixed. Strain. If too thick, add a little water. Save about 4 ounces to use as culture for next supply. If buttermilk is made daily, a new culture need not be bought oftener than once a month.

Whey.

To 1 quart whole milk warmed to 100° F. add one-half ounce liquid rennet, stirring for a moment only. After standing at room temperature until thick and firm (20–30 minutes) pour it upon a double layer of gauze and draw the corners together to make a bag. Allow it to hang for an hour to drain off the whey. Do not squeeze the curd. Keep the whey on ice until used.

The liquid part is the whey, which contains most of the sugar and salts of the milk, the soluble protein or whey protein, and nearly one-third of the fat. The composition of whey, however, depends on both the way it is made and whether it is made from whole or skim milk. Whey that is pressed from the curd contains a large and variable amount of solids. If made from fat-free milk, whey consists almost entirely of sugar and salts, while whey made from whole milk may contain nearly 1 per cent protein and 1 per cent fat.

Whey has been much used in the past and may be advantageously used in certain types of indigestion. However, whey used as the sole food is inadequate for the growth needs of an infant, and serious results have occurred when babies have been put on this diet for some acute disturbance and have been kept too long on it.

CEREALS.

Cereal water.

Thin gruel or cereal water is usually made of prepared barley or wheat flour. Take from 1 to 2 level tablespoonfuls of flour, rub to a smooth paste with a little cold water, then stir into a pint of briskly

[1] These recipes were prepared in cooperation with the Office of Home Economics of the U. S. Department of Agriculture.

boiling water. Stir constantly. After the mixture has boiled, place it in a double boiler and cook at least one-half hour. Do not salt for a baby under 6 months of age. Cereal water made in this way should not need straining. If it has lumped, strain through a fine wire sieve.

The amount of flour used may be increased from 1 to 5 level tablespoonfuls to a pint of water, according to the age of the child. If the cereal water cooks away, the content may be made up to 1 pint by adding boiled water. If oatmeal or any other cut or whole grain is used to make cereal water for young infants, it should be cooked slowly at least one hour and strained before using.

Gruels.

Thick cereal water is often called gruel. Grains, such as pearl barley or oat flakes, in the proportion of from 2 to 4 tablespoonfuls to the pint of water, may be used instead of flour, but require much longer cooking. Gruels made of grains should be strained for infants under 1 year of age. Gruel thick enough to jelly when cold is often called cereal jelly.

Farina gruel.—One tablespoonful farina, 1 tablespoonful cold water, ½ teaspoonful salt, 1 cup boiling water, 1 cup scalded milk. Mix the farina with the cold water, add to the boiling water, and boil 30 minutes. Add the scalded milk and salt.

Oatmeal gruel.—One-fourth cup coarse oatmeal, ½ teaspoonful salt, 1½ cups boiling water, hot milk. Add the oatmeal and salt to the boiling water and cook from four to five hours in a double boiler. Strain and dilute with hot milk to the desired consistency either of thin paste or jelly.

Corn-meal gruel.—One tablespoonful corn meal, ½ tablespoonful flour, ¼ teaspoonful salt, 2 tablespoonfuls cold water, 1½ cups boiling water, milk. Make a smooth paste of the meal, flour, and salt with the cold water and stir into boiling water. Cook in a double boiler one and one-half hours. Dilute with hot milk to the desired consistency of thin paste or jelly.

Breakfast cereals.

A double boiler or fireless cooker should be used. Have salted boiling water in the upper section of the double boiler and place directly on the fire. Sift the dry ingredients into the water and stir constantly to avoid lumping. Boil from three to five minutes, then place the upper part of the double boiler over the lower part. Cover closely and simmer for the time required (see table on time for cooking cereals), or put into a fireless cooker from 10 to 12 hours, or overnight. Graham mush must be prepared like cereal water by first mixing it in cold water. Corn meal is best put directly into cold water in a double boiler and cooked without stirring.

Proportions and time for cooking cereals.

1 cup oatmeal	4 cups water	3 hours at least.
1 cup rolled oats	2 cups water	1 to 2 hours.
1 cup farina	4 cups water	½ to 1 hour.
1 cup cracked wheat	6 cups water	3 hours at least.
1 cup graham flour	3 cups water	½ to 1 hour.
1 cup corn meal	4 cups water	3 hours.
1 cup rice	3 cups water	50 minutes if steamed; 30 minutes if boiled after soaking over night; otherwise ¾ of an hour.

Cereals are much more appetizing if cooked with salt. About 1 level teaspoonful of salt should be allowed to 1 cupful of dry cereal.

All cereals used for children need long cooking. If package cereals are used, they should be cooked for at least twice the time given in the directions on the wrapper. Even those cereals which are advertised as being partially cooked should be cooked for one hour if they are to be served to young children.

Milk may be substituted for half of the water used in cooking cereals and is best added when the cereal is partially or nearly done. The food value of the cereal is greatly increased by this procedure, and the cereal is made more appetizing.

BREADSTUFFS.

Dried bread.

Cut thin slices of stale bread and place separately on an oven rack or on a toaster. Heat slowly, so as to dry without browning.

Twice-baked bread (zwieback).

Cut or tear bread into small pieces and dry in a slow oven until thoroughly but delicately browned. The warming oven of a coal stove may be used; if a gas stove is used, the door should be left slightly open. Commercial zwieback is usually sweetened. Twice-baked bread may be used in place of cereal, either in slices or crushed.

Wafers (plain).

One cup flour, 1 teaspoonful salt, 1 tablespoonful butter, milk. Sift flour and salt together, chop in the butter, and add enough milk to make a very stiff dough; chop thoroughly and knead until smooth. Make into small balls and roll each one into a thin wafer. Place in shallow greased and floured pans and bake in a hot oven until the balls puff and are brown.

Bran muffins.

One cup bran, ½ cup flour, ½ teaspoonful soda, 2 tablespoonfuls butter, 1½ tablespoonfuls molasses, ¾ cup sour milk. Stir well and bake in a moderate oven in gem pans.

VEGETABLES.

Green vegetables.

The most suitable ones for the use of infants and young children are spinach, chard, lettuce, beet greens, beets, carrots, turnips, onions, string beans, celery and asparagus. Wash and prepare these vegetables for cooking. Divide them into small pieces; boil slowly until tender in soup stock or in as little water as possible. Cook uncovered to allow the escape of certain indigestible substances. The water in which vegetables are cooked contains certain valuable minerals and should either be served with the vegetable or used in soup.

For infants these vegetables should be used first as strained soup, then as puree, and later mashed or finely divided. Butter or white sauce may be added to boiled vegetables in the second year, if desired.

Starchy vegetables.

White potato, rice, and macaroni and spaghetti are usually classed as starchy vegetables.

Potato.—When given to infants, potato is best baked. Boiled or mashed potato may be given to older children.

Rice.—When used as a vegetable, rice should be washed thoroughly and cooked uncovered in considerable water. One-half cup rice, 4 cups water, ½ teaspoonful salt. Do not let water stop boiling when rice is added. Boil 45 minutes, or until the grains are tender. Turn into a strainer, drain, and set in an oven a few minutes to dry. The water drained from rice prepared in this way may be used as a cereal water or in the preparation of vegetable soup.

Macaroni and spaghetti.—One-half cup macaroni, 6 cups water, 1 teaspoonful salt. Break macaroni into inch pieces and cook in boiling salted water from 20 to 30 minutes, until the tubes begin to split open. Strain, serve in soup, or with butter or white sauce.

Vegetable soup.

One cup carrots, 1 cup turnips, handful of spinach (other vegetables may be substituted), 1 teaspoonful salt, water to cover. Water drained from rice makes a more nourishing soup than plain water. Add 1 soup bone or one-half cup scraped or chopped beef if desired. Chop vegetables until fine or put through a meat grinder. Cover with water, using as little as possible, and boil slowly until very soft. For young infants, strain, pressing the vegetables with the back of a large spoon. The liquid will be cloudy. For older infants press the vegetables through a sieve, adding 1 or more teaspoonfuls of pulp to small cup of liquid.

When thus prepared, this soup may be kept from three to four days except in hot weather, if the entire quantity is heated to the boiling point every day before using.

Well-cooked rice, barley, or bread crumbs may be added for infants. Egg may be given in soup, if desired, by stirring 1 well-beaten egg into 1 cup of hot soup until the egg becomes finely curded.

MEATS.

Mutton broth.

Two pounds mutton cut from fore quarter, 1 quart cold water, 1 teaspoonful salt. Wipe the meat, remove the skin and fat and cut into small pieces. Put in a kettle with bones that have been well broken. Add cold water and let it stand one-half hour to extract juices. Heat gradually, uncovered, to the boiling point and skim. Simmer four hours or until the meat is tender. Do not allow it to boil. Add salt when partly cooked. Strain, cool thoroughly, and remove all fat. Reheat the jelly as needed.

To increase the energy value of the food, to 3 ounces of this broth, rice, macaroni, barley, egg yolk, or whole egg may be added.

Beef broth or chicken broth is prepared in the same way.

Scraped beef.

Have a piece of lean steak from ½ to 1 inch thick. Lay it on a meat board, and with a large, heavy mixing spoon scrape the soft part off either side, leaving the tough fibers. Season the pulp with a little salt and shape into small flat round cakes ½ inch thick. Broil or cook in a hot, dry skillet, never in grease. This scraped meat may also be served with the addition of a little butter.

Beef juice.

Select a piece of meat from the rump or upper part of the round. Broil or warm slightly from one to two minutes to set free the juices. Cut in small pieces. Squeeze out the juice by means of a meat press or potato ricer. Feed the juice warm. One-half pound of steak should furnish about 2 ounces of beef juice.

EGGS.

Coddled egg.

In a cup or a small saucepan boil 1 cupful of water to 1 egg. Remove pan from fire and put in egg. Cover closely and allow to stand 6 to 10 minutes, when the whites should be jellied and the yolks should be soft.

Scrambled egg.

One egg, ½ cup milk, 1 teaspoonful butter, 1 saltspoonful salt. Beat the egg in the top of a double boiler until light. Add the milk and other ingredients. Stir over boiling water until it thickens.

FRUITS.

Stewed prunes.

Wash and look over the prunes, cover with clear, cold water and let them stand overnight. In the morning put the saucepan on the back of the stove where the prunes will cook slowly for four hours. No sugar is needed, as prunes are 18 per cent sugar and are made very sweet by this manner of cooking. This simmering process renders them rich and juicy. For infants, the prunes should be pressed through a fine wire sieve.

Apple sauce.

Pare apples, cut into small pieces, and add to every cup of apples ¼ cup of cold water. Cover and cook the apples until tender; strain. Add 2 tablespoonfuls of sugar to every cup of strained apples.

Baked apples.

Wash and core apples. Put in a shallow dish with 1 tablespoonful water to each apple; more may be added during cooking if necessary. Put 2 teaspoonfuls of sugar into the center of each apple. Bake in a hot oven from 20 to 30 minutes, or until soft; baste with the syrup every 10 minutes. For infants apples may be pared before baking, or the skin may be removed after cooking.

DESSERTS.

Plain junket.

One cup fresh milk, ¼ junket tablet, 1 teaspoonful cold water. Heat milk until lukewarm. Dissolve the tablet in cold water and stir into the milk. Pour at once into glasses and allow to stand one-half hour in a warm room. When firm set in a cool place until served.

Custard junket.

One-half cup hot milk, 1 egg, 2 tablespoonfuls sugar, ¾ cup lukewarm milk, ¼ teaspoonful vanilla, ½ junket tablet, 2 teaspoonfuls cold water. Beat the egg, add sugar, pour on gradually the hot milk. Cook in top of double boiler, stirring constantly until it thickens. Take at once from fire and cool. Dissolve crushed tablet in cold water; add to lukewarm milk; and add to custard when it is lukewarm, and blend thoroughly. Add vanilla. Pour into cups. Allow it to grow firm and chill.

Boiled custard.

Two cups hot milk, 3 egg yolks, ¼ cup sugar, pinch of salt, flavoring. Beat the yolks slightly and add the sugar and salt. Pour the hot milk over this mixture, stirring constantly. Cook in a double boiler, stirring until the mixture thickens and will form a coating on the spoon. Cool and flavor. If the custard curdles, beat with an egg beater.

If the whites of the eggs are to be used, beat them very stiff and add 3 tablespoonfuls of powdered sugar. Place by spoonfuls on water which is hot but not boiling. Cover the dish. Test occasionally by putting a knife into it; when it is done nothing will stick to the knife. Remove from the water with a wire egg beater or split spoon and place on top of the custard.

Gelatin.

A plain gelatin made with fresh strained fruit juice (orange) may be given to children. Artificially colored gelatins are not desirable.

A snow pudding made of gelatin to which beaten white of egg has been added may be used.

Cornstarch pudding.

One cup milk, 1½ tablespoons cornstarch, 1½ tablespoonfuls sugar, pinch of salt, white of one egg, vanilla. Scald the milk. Mix cornstarch, sugar, and salt thoroughly; add slowly the scalded milk, stirring constantly. Cook 20 minutes. Remove from fire and while very hot fold in lightly but thoroughly the well-beaten white of egg. When partially cooled add flavoring to taste; put into wet cups or molds and let stand for several hours on ice. Remove from molds. May be served with a soft custard. Vary the pudding by adding a little melted chocolate.

Cornstarch fruit jelly.

One pint fruit juice, 4 tablespoonfuls sugar, 1¼ cups cornstarch. Sweeten the juice to taste and heat to boiling. Make a smooth paste of the cornstarch and a little cold water, add slowly to the juice and cook 30 minutes, stirring constantly at first. Pour into cold, wet molds. Serve cold.

Rice pudding.

One quart of milk, ⅓ cupful of rice, ⅓ cupful of sugar, ½ teaspoonful of salt; flavoring. Wash the rice thoroughly, mix the ingredients, and bake three hours or more in a very slow oven, stirring occasionally at first.

Prune whip.

One-third pound prunes, whites of 5 eggs, ½ cup sugar, ½ tablespoonful lemon juice. Pick over and wash prunes, then soak several hours in cold water to cover; cook in same water until soft; remove stones and rub prunes through a strainer, add sugar, and cook 5 minutes; the mixture should be of the consistency of marmalade. Beat whites of eggs until stiff, add prune mixture gradually when cold, and lemon juice. Pile lightly on buttered pudding-dish, bake 20 minutes in slow oven. Serve cold.

GOVERNMENT PUBLICATIONS.

Much helpful and instructive literature concerning the health and welfare of the family, the care of children, and the sanitation of the home is published by different branches of the Federal Government, notably by the various bureaus of the Department of Agriculture, by the Public Health Service of the Treasury Department, and by the Children's Bureau of the Department of Labor.

Many of the Government publications are distributed free of charge to residents of the United States. Some, however, have a small price attached; these may be purchased from the Superintendent of Documents, Washington, D. C. Farmers' Bulletins, Entomology Circulars, Animal Industry Circulars, and Weekly News Letters are to be had by addressing a request to the Secretary of Agriculture; and Public Health Reports, reprints from Public Health Reports, Hygienic Laboratory Bulletins, and Public Health Bulletins, from the Public Health Service, Washington, D. C. Publications of the Children's Bureau may be secured upon application to the chief of the bureau.

RECORD OF THE BABY'S WEIGHT.

Baby's name_____

Date of birth _____

	Pounds.	Ounces.
Weight at birth		
Second day		
Third day		
Fourth day		
Fifth day		
Sixth day		
Seventh day		
End second week		
End third week		
End fourth week		
End fifth week		
End sixth week		
End seventh week		
End eighth week		
End ninth week		
End tenth week		
End eleventh week		
End twelfth week		
End thirteenth week		
End fourteenth week		
End fifteenth week		
End sixteenth week		
End seventeenth week		
End eighteenth week		
End nineteenth week		
End twentieth week		
End twenty-first week		
End twenty-second week		
End twenty-third week		
End twenty-fourth week		
End seventh month		
End eighth month		
End ninth month		
End tenth month		
End eleventh month		
End first year		
End eighteenth month		
End second year		

INDEX.

Page.

Abdominal bands. *See* Clothing, selection of.
Accidents, simple remedies for:
  Burns 90–91
  Inhaling foreign substances 91
  Swallowing foreign bodies 90
  Swallowing pills or poison 90
Adenoids. *See* Diseases, common.
Artificial feeding. *See* Feeding, artificial.
Baby:
  City, health centers for 40–41
  Country, traveling clinics for 41
  Delicate. *See* Baby, premature.
  Normal development of—
    Food necessary for—
      From 1 to 2 years 76, 79
      Under 1 year 57–58, 71–72, 74–76
    Methods of determining 32–33, 54
  Premature, method of caring for 60–61
  Sick, care of 79–98
    Symptoms to be noted 79–80
Baby from 1 to 2 years:
  Clothing 21, 22, 23, 28–29
  Food 76–79
  Growth 78
Baby under 1 year:
  Clothing 18–23, 28–29
  Feeding—
    Artificial feeding, summary of 74–76
    Rules 72–73
    Supplementary diet to milk 71–72
    See also Feeding, artificial; Feeding, breast.
  Growth—
    Artificially fed infant 73–74
    Breast-fed infant 53–54
Baby pushers. *See* Exercise.
Bands, abdominal. *See* Clothing, selection of.
Bath:
  Directions for giving 23–26
    Equipment 16, 24
    Kinds of bath 25–26
    Overcoming adversions 25
    Protection from drafts 24
    Temperature of bath 24, 25–26
    Temperature of room 24
    Time 23
  Kinds of 25–26
  See also Nursing mother, care of.
Bed. *See* Nursery, furnishings of.
Birth registration:
  Form for use of parent 2
  Importance of 11
  Requirement of 11

Page.

Bowels:
  During artificial feeding 74
  During nursing period—
    Baby 56
    Mother 49
  Training of 42–43, 83
Breadstuffs. *See* Foods, infant, recipes for.
Breast feeding. *See* Feeding, breast.
Breast milk. *See* Milk, breast.
Breasts, care of 50–52
Burns. *See* Accidents.
Buttermilk and whey. *See* Foods, infant, recipes for.
Cereals. *See* Foods, infant, recipes for.
Chafing. *See* Diseases, common.
Chicken pox. *See* Diseases, communicable.
Cloaks and caps. *See* Clothing, selection of.
Clothing, selection of:
  Articles—
    Bands, abdominal 19–20
    Cloaks and caps 22–23
    Diapers 18–19
    Night clothing 20–21, 28–29
    Petticoats 20
    Shirts 20
    Shoes and stockings 21–22
    Slips 20
  Factors to be considered—
    Size 34–35
    Style 18
    Weight according to—
      Climate 13, 17–18, 21–22
      Physical condition of baby 17
Colds. *See* Diseases, common.
Colic. *See* Diseases, common.
Common diseases. *See* Diseases, common.
Communicable diseases. *See* Diseases, communicable.
Constipation. *See* Diseases, common.
Convulsions. *See* Diseases, common.
Creeping pen. *See* Exercise.
Croup. *See* Diseases, common.
Deciduous teeth. *See* Teeth, kinds of.
Delicate baby. *See* Baby, premature.
Desserts. *See* Foods, infant, recipes for.
Development of normal baby. *See* Baby, normal development of.
Diapers, care of 18–19
  See also Clothing, selection of.
Diarrhea. *See* Diseases, common.
Diet for the baby. *See* Feeding, artificial.
Diet for the nursing mother. *See* Nursing mother, care of.
Diphtheria. *See* Diseases, communicable.

Page.

Discipline. *See* Habits, training, and discipline.
Diseases:
Common, symptoms and care of—
Adenoids 89
Chafing 86
Colds 88
Colic 82
Constipation 83–84
Convulsions 87–88
Croup 89–90
Diarrhea 84–85
Earache 89
Eczema 86–87
Enlarged tonsils 89
Heat rash 86
Hiccough 82
Hot-weather disturbances 85
Rickets 85–86
Scurvey 85
Sudden illness 82
Thrush 87
Vomiting 82
Worms 88
Communicable, preventing spread of 91–93
Communicable, symptoms and care of—
Chicken pox 95
Diphtheria 95–96
German measles 94
Gonorrhea 97
Infantile paralysis 96
Measles 93–94
Scarlet fever 94
Smallpox 95
Syphilis 97–98
Tuberculosis 97
Whooping cough 93
Dressing table. *See* Nursery, furnishings of.
Ears:
Care of. *See* Special organs.
Earache. *See* Diseases, common.
Eczema. *See* Diseases, common.
Eggs. *See* Foods, infant, recipes for.
Exercise:
Baby pushers, directions for making 35
Clothing permitting of exercise 34–35
Creeping pens, kinds of 16, 35
See also Nursing mother, care of.
Expression of breast milk. *See* Milk, breast, expression of.
Eyes. *See* Special organs.
Feeding:
Artificial—
Difficulties of the artificially fed baby—
Overfeeding 74, 82
Stools 74
Underfeeding 74
Equipment for 67–68
From 1 to 2 years 76–79
Growth of infant receiving 73–74
Milk mixtures according to age 69
Preparation of bottle feedings 68–69
Rules for 72–73

Page.

Feeding—Continued.
Artificial—Continued.
Substitutes for mother's milk 62–65
Ass's milk 63
Cow's milk, preparations of 63–64
Goat's milk 62–63
Proprietary infant foods, care in use of 64–65
Under 1 year 71–72, 74–76
Breast—
Care of the nursing mother 48–52, 56
Difficulties of nursing period 55–57
Overfeeding 57, 82
Stools 56
Underfeeding 56
Growth of infant receiving 53–54
Importance of 47–48
Production of breast milk 48
Rules for 53
Substitutes for. *See* Feeding, artificial.
Summary of feeding for a well breast-fed baby 57–58
Technique of nursing 52–53
Weaning from 58–59
Wet nurse for, selection of 59–60
Training in food habits 76
Feet, care of 32
Foods:
Energy-producing, for baby from 1 to 2 years 77–79
Infant, recipes for—
Breadstuffs 101
Buttermilk and whey 99
Cereals 99–101
Desserts 104–105
Eggs 103
Fruits 104
Meats 103
Vegetables 102
Proprietary infant. *See* Feeding, artificial; substitutes for mother's milk.
Fruits. *See* Foods, infant, recipes for.
Genital organs. *See* Special organs.
Gonorrhea. *See* Diseases, communicable.
Growth of baby. *See* Baby from 1 to 2 years. *See also* Baby under 1 year.
Growth of teeth. *See* Teeth, growth.
Habits, training and discipline:
Bad habits—
Bed wetting 45
Crying 44
Masturbation 45–46
"Pacifiers" 44–45
Thumb or finger sucking 45
Early training 46–47, 76
Punishment 46
Systematic care 42
Training the bladder 43–44
Training the bowels 42–43, 83
Training in food habits 76
Health centers for care of the baby 40–41
Heat rash. *See* Diseases, common.
Hiccough. *See* Diseases, common.
Home, selection of 11, 12

Page.
Hot-weather disturbances. *See* Diseases, common.
Ice box, portable, for milk 39–40
Infantile paralysis. *See* Diseases, communicable.
Malnutrition:
Relation of improper food habits to..... 76–77
Rickets a result of..... 85–86
Measles. *See* Diseases, communicable.
Meats. *See* Foods, infant, recipes for.
Milk:
Breast—
Conditions influencing..... 54–55
Expression of, directions for..... 61–62
Growth of infant receiving..... 53–54, 73
Cow's—
Care in choice of..... 66
Care of, in home..... 66–67
Care of, while traveling..... 39–40
Cleanliness in production of..... 65–66
Growth of infant receiving..... 73–74
Preparations of. *See* Feeding, artificial; substitutes for mother's milk.
Milk mixtures according to age..... 69
Milk teeth. *See* Teeth, kinds of.
Mouth. *See* Special organs.
Night clothing. *See* Clothing, selection of.
Nose. *See* Special organs.
Nursemaids:
Children as caretakers..... 38–39
Selection and supervision of..... 38
Nursery:
Cleanliness of..... 15
Furnishings of..... 15, 16
Methods of heating..... 13
Precautions against open windows..... 36
Screening of..... 36, 39
Selection of..... 12
Temperature of..... 12–13
Ventilation of..... 13–14, 28–29
Nursing mother, care of:
Baths..... 49
Bowels..... 49, 56
Breasts..... 50–52
Diet..... 48–49
Fresh air and exercise..... 50
Recreation..... 50
Sleep..... 49
Work..... 50
Nutrition. *See* Feeding. *See also* Malnutrition.
Outdoor life:
Importance of..... 34
Uses of vehicles..... 35–36
See also Sleeping porches.
Overfeeding. *See* Feeding, artificial, difficulties of the artificially fed baby. *See also* Feeding, breast, difficulties of nursing period.
Petticoats. *See* Clothing, selection of.
Play pen. *See* Exercise, creeping pens.
Playing with the baby, moderation in..... 37
Poison, antidote for..... 90
Portable refrigerator for milk. *See* Ice box, portable.

Page.
Premature baby. *See* Baby, premature.
Proprietary infant foods. *See* Feeding, artificial—substitutes for mother's milk.
Publications, Government..... 106
Punishment, danger in..... 46, 81
Recipes, food. *See* Foods, infant, recipes for.
Recreation. *See* Nursing mother, care of.
Registration, birth. *See* Birth registration.
Rickets. *See* Diseases, common.
Sanitation. *See* Home, selection of..... 12
Scarlet fever. *See* Diseases, communicable.
Scurvy. *See* Diseases, common.
Sea bathing, caution to be taken..... 26
Shirts. *See* Clothing, selection of.
Shoes and stockings. *See* Clothing, selection of.
Sick baby. *See* Baby, sick.
Sick room, care of..... 92–93
Sleep:
Provisions for inducing..... 28, 29–30
Regularity in..... 29–30
Required amount..... 27–28
See also Nursing mother, care of.
Sleeping bags. *See* Clothing, selection of; night clothing.
Sleeping porches:
Clothing for..... 22
Desirability of..... 14, 29, 34
See also Nursery, ventilation of.
Slips. *See* Clothing, selection of.
Smallpox. *See* Diseases, communicable.
Special organs, care of..... 27
Stools. *See* Feeding, artificial, difficulties of the artificially fed baby. *See also* Feeding, breast, difficulties of nursing period.
Substitutes for mother's milk. *See* Feeding, artificial.
Superstitions, danger in..... 41–42
Syphilis. *See* Diseases, communicable.
Teeth:
Care..... 32
Growth..... 31–32
Kinds..... 30–31
Milk (deciduous)..... 30–31
Permanent..... 30, 31
Thrush. *See* Diseases, common.
Toilet, equipment for..... 61
Tonsils, enlarged. *See* Diseases, common.
Toys, advisable kinds of..... 37–38
Training. *See* Habits, training and discipline.
Traveling clinics for the country baby..... 41
Traveling with the baby..... 39–40
Care of the diapers..... 40
Clothing..... 40
Food..... 39–40
Portable ice box for milk..... 39–40
Tuberculosis. *See* Diseases, communicable.
Underfeeding. *See* Feeding, artificial—difficulties of the artificially fed baby. *See also* Feeding, breast, difficulties of nursing period.
Vegetables. *See* Foods, infant, recipes for.

Vehicles. *See* Outdoor life. Page.
Ventilation. *See* Nursery, ventilation of.
Vomiting. *See* Diseases, common.
Weighing:
Comparative results of breast- and bottle-fed babies..... 73–74
Weighing—Continued. Page.
Form for use of parent..... 107
Method of..... 33–34
Whooping cough. *See* Diseases, communicable.
Worms. *See* Diseases, common.

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